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## 1964

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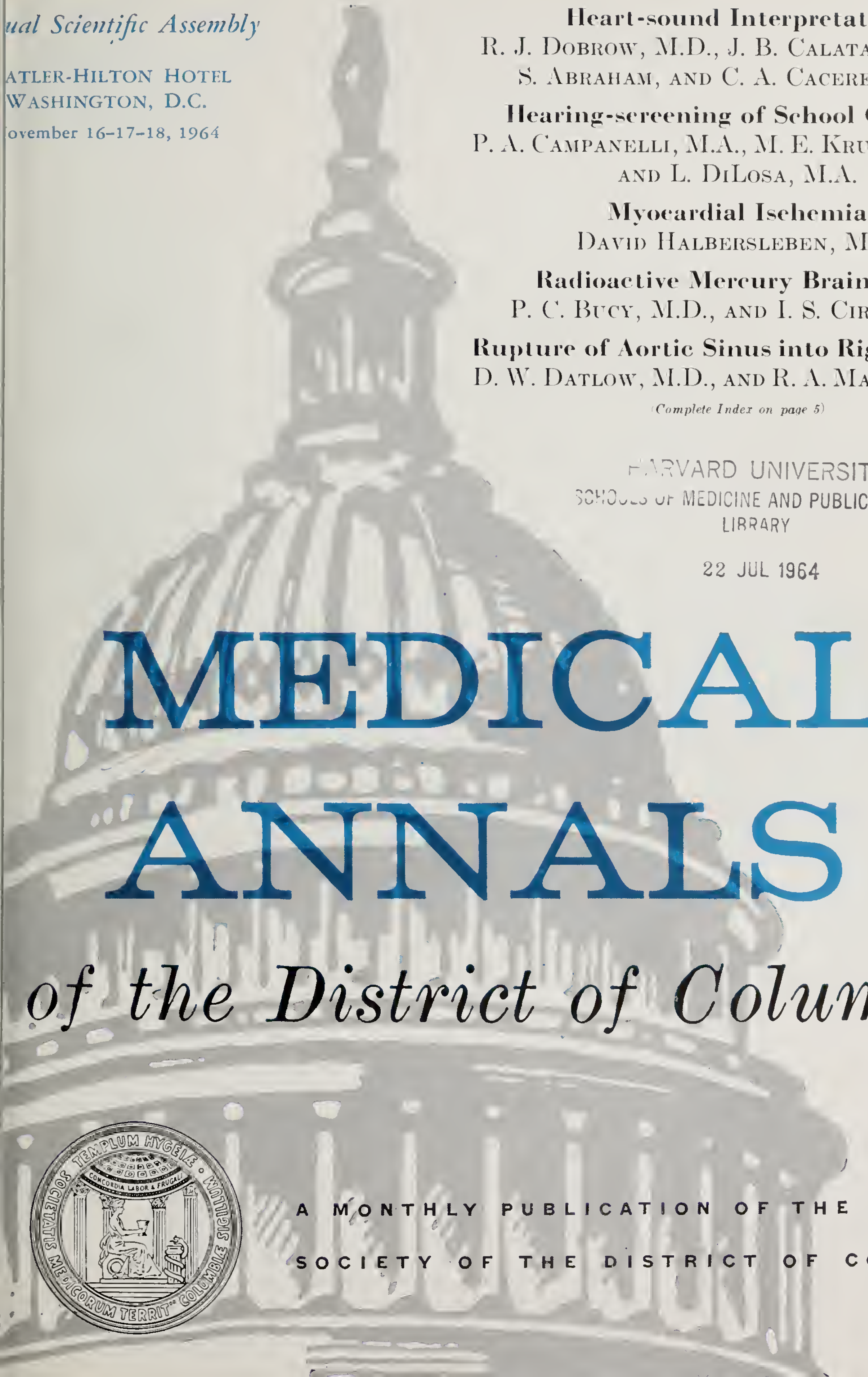

**Heart-sound Interpretation**
R. J. Dobrow, M.D., J. B. Calatayud, M.D.,
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**Hearing-screening of School Children**
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**Radioactive Mercury Brain Scan**
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**Rupture of Aortic Sinus into Right Atrium**
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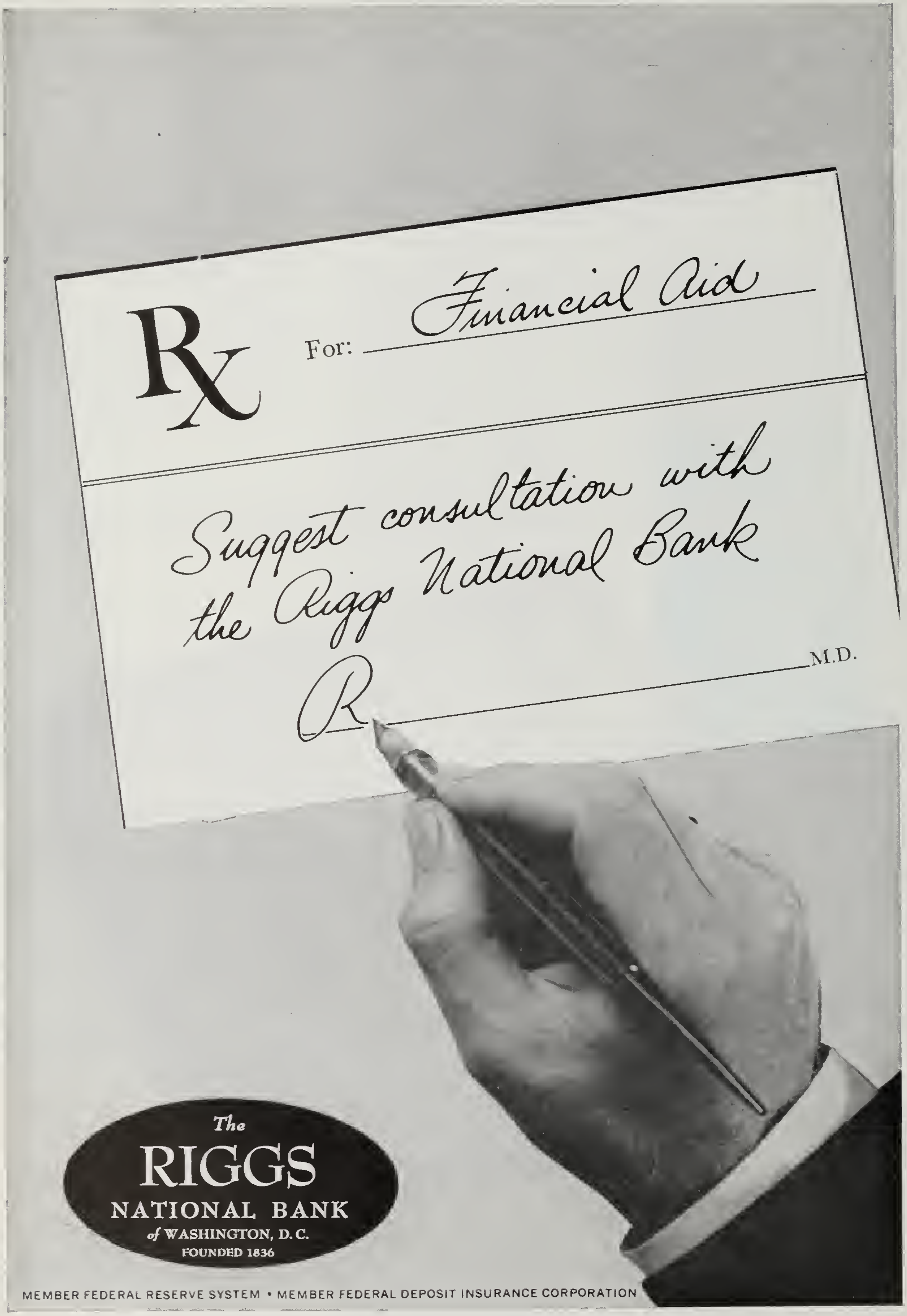
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1. Steigmann, F., and Griffin, R.: Evaluation of Quinethazone, a New Diuretic. *J. Amer. Geriat. Soc.* 11:945 (Oct.) 1963.
2. Schwartz, M.: Office Evaluation of a New Diuretic in Patients with Hypertensive Diseases. Scientific Exhibit Presented at the Clinical Meeting of the American Medical Association, Los Angeles, California, Nov. 25-28, 1962.

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# BOOK REVIEWS

**Handbook of Ocular Therapeutics and Pharmacology.** Philip P. Ellis, M.D., and Donn L. Smith, Ph.D., M.D. Price, $8.50. Pp. 193, St. Louis: Mosby, 1963.

Dr. Ellis and Dr. Smith, of the Division of Ophthalmology and the Department of Pharmacology, respectively, of the University of Colorado Medical Center, have compiled the "Handbook of Ocular Therapeutics and Pharmacology" which has recently been published by the C. V. Mosby Company. The Handbook is divided into 2 sections, the first giving a concise but fairly complete compendium of Ocular Therapeutics, and the second a rather thorough but brief Pharmacopeia of the drugs in the ophthalmic armamentarium.

One of the problems of a venture of this nature is that it must be rather dogmatic, but it is freely admitted that the therapeutics regimen advised would probably represent, in most instances, the consensus.

Concise as the book is, the completeness of the coverage was a most pleasant surprise to the reviewer. Although this book's value is greatest for the young resident who needs this information at his fingertips, the discussion of the less frequently encountered entities and infrequently used drugs should be of general interest.

John R. Weimer, M.D.

**Search the Scriptures (A Physician Examines Medicine in the Bible).** Robert B. Greenblatt, A.B., M.D., C.M. Price, $4.00. Pp. 120. Philadelphia: Lippincott, 1963.

The subject of medicine and the Bible has been explored from time immemorial, but this volume presenting an endocrinologist's approach may be unique in some aspects. Realizing that Biblical analogies to modern medicine fascinated students, Dr. Greenblatt turned his 25-year-old hobby into a short book, which, if not exhaustive and scholarly, is at least entertaining, clever and original.

Starting with Esau, Dr. Greenblatt suggests that he was not an insensitive fool as commonly believed but in all probability a sick man suffering from hypoglycemia, or low blood sugar. He had to allow his brother to drive the hard bargain of forfeiting his birthright because if he hadn't been able to have the protein nourishment from the lentil soup immediately he would not have lived anyway; hence, Genesis 25:29–33 quotes Esau as saying, "Behold, I am at the point to die, and what profit shall this birthright do to me?"

Quoting from 1 Timothy 5:23, "Drink no longer water, but use a little wine for thy stomachs' sake and thine often imfirmities," he concludes the obvious. The therapeutic effect of the moderate use of alcohol has been recognized through the centuries, even in the purification of water—"Drink of the wine which I have mingled" (Proverbs 9:1). This is one of the most interesting chapters in the book, because the author has dealt with it in considerable depth and quotes interesting and voluminous support for both the evils of alcohol and its benefits. Such a potent product can add or detract from human life, depending on the complexities of the individual user—"All things indeed are pure; but it is evil for that man who eateth with offence" (Romans 14:20–21).

In discussing "What is Man that Thou art mindful of him?" (Psalms 8:3–5), the author departs abruptly from the Scriptures and turns to Tennyson, Shakespeare, Chaucer, etc. He discusses the role of the endocrine glands in the development of character and personality; the role of sex; psychosomatic medicine; the aging process; and finally a bird's-eye view of the history of medicine through the ages, its present status, and where it is going. He sees need for a bridge between the science of medicine and the human needs of the patient. He finds missing today Jesus' healing through love and sympathy and Moses' stressing of the importance of individual health to the social welfare. He further laments that no longer can we say with Osler, speaking in the 19th century, ". . . the leaves of the tree of Science have been for the healing of nations." Like so many other paradoxes in life this "Promethean gift to man" has turned into the soul of destruction.

Millicent B. Yater

**Synopsis of Ophthalmology**, 2nd ed. William H. Havener, B.A., M.D., M.S. (Ophth.). Price, $7.85. Pp. 395, with 249 illustrations. St. Louis: Mosby, 1963.

As the word implies, this is a synopsis and it is not to be considered as a standard reference text. Although of limited value to an ophthalmologist, for medical students, interns, residents, and nonspecialists it represents a well organized and copiously illustrated handbook of great value.

The chapter dealing with diagnosis and management of eye injuries will be most helpful to those nonspecialists who have occasion to work in hospital emergency rooms. It clearly points out pitfalls to be avoided and at what point consultations should be requested.

Although I personally disagree with the author's statement in his chapter on neuro-ophthalmology that "retinal detachment involving the macula destroys the possibility of future foveal vision," the text is essentially accurate and current.

This book would be a valuable and useful addition to the library of any physician, and especially to the nonophthalmologist.

Stephen S. Pappas, M.D.

**Pediatric Therapy.** Harry C. Shirkey, B.S. (Pharm.), M.D., F.A.A.P., Editor, with 72 contributors. Price, $16.50. Pp. 1144, with 343 illustrations. St. Louis: Mosby, 1964.

This new addition to the pediatric literature provides a comprehensive guide to the therapy currently available for sick children. Dr. Shirkey appears to have

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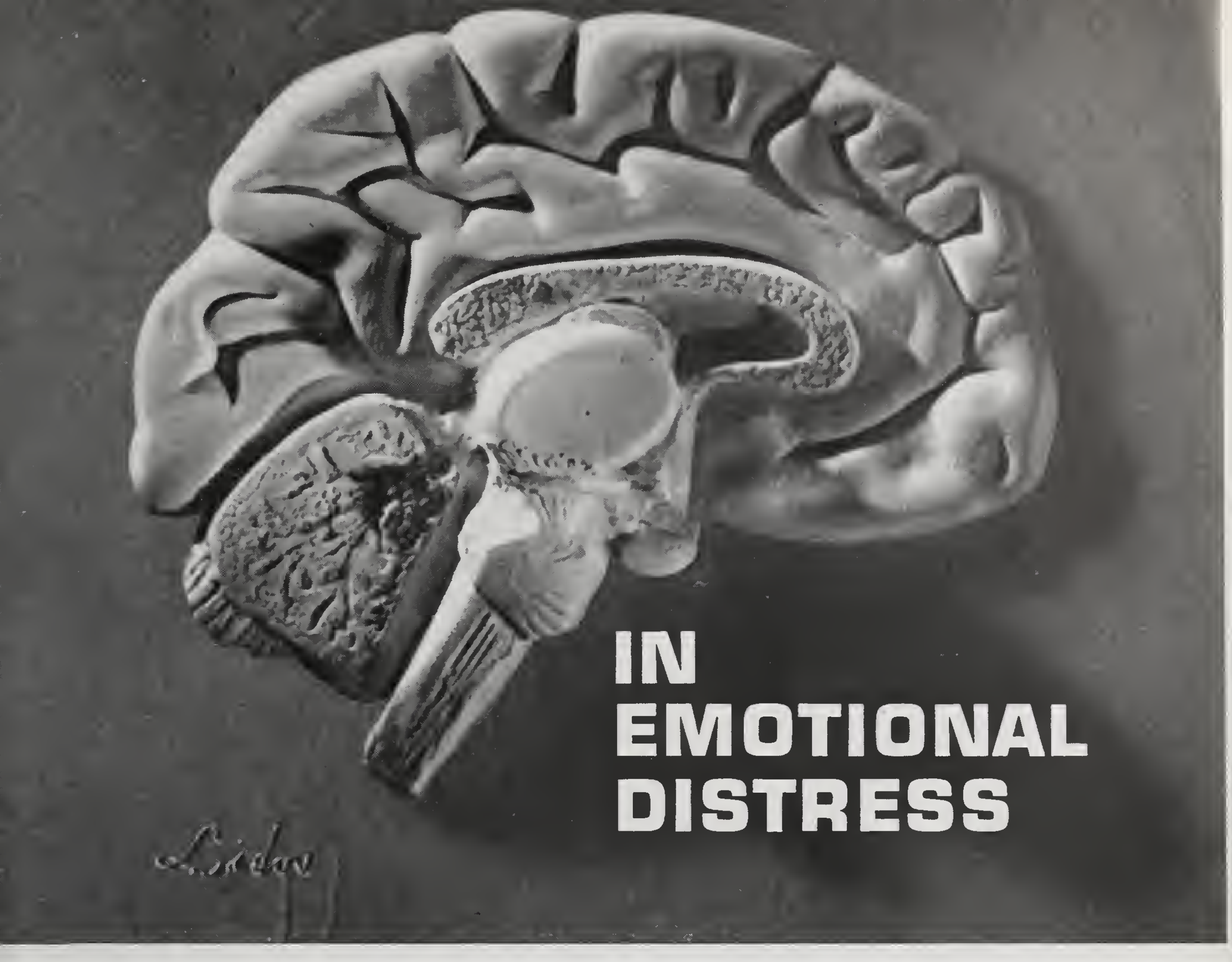

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## Book Reviews

(*Continued from page 10*)

excellent qualifications for editing such a volume. His own contributions reflect his unusual background and experience in the fields of pharmacy, pharmacology and pediatrics. Dr. Shirkey has been joined in this venture by 72 other distinguished pediatricians who supply chapters in their subspecialties.

This attractive volume is enhanced by 343 illustrations in black and white; there are no color plates. The index has been carefully compiled to direct the reader to material relevant to his problem without loss of time. Fifty pages of blue paper give a valuable section on pediatric dosages, where the drugs are tabulated according to their pharmacologic action. The metric system is used consistently. The preparations and contents of medications available commercially are duly listed. Generic names of drugs are used, but frequently trade names are given in parentheses. The dosages recommended are in agreement with amounts suggested in other standard textbooks.

In the first section of the book, which is written mainly by Dr. Shirkey, the general considerations of drug therapy are discussed. Chapters are included on such topics as: "The Placebo—Its Clinical Significance," "Reactions to Drugs," and "Physical and Chemical Considerations in Choice of Drugs for Pediatric Use." Dr. Shirkey has taken much trouble to stress his view that pediatric therapy is a distinct entity, and not necessarily the accepted adult version scaled down.

The second section describes the treatment of symptoms and the general methods available to alleviate such distressing situations.

In the third section general supportive therapy is discussed by several authors. The emotional needs of children who are subjected to an unfamiliar environment and unpleasant procedures are recognized and adequately discussed. The topics covered include those listed under such chapter headings as "Behavioral Disturbances of Children," "Recreational Therapy," "Treatment of Obesity," and "Parenteral Fluid Therapy."

The remainder of the book is devoted to the therapeutics of specific conditions, which are arranged according to etiology or systematic occurrence.

The management of hereditary metabolic diseases are well reviewed by David Yi-Yung Hsia and Margaret O'Flynn. There is a helpful summary of the uses of gamma globulin therapy. Diseases of the newborn and premature infant are described, but the text provides little that is not familiar from other standard works.

The section on infectious diseases is lengthy and fairly complete. The accepted prophylactic methods are clearly outlined. The recommendations for the use of the Sabin vaccine are currently acceptable. Margaret H. D. Smith discusses the treatment of tuberculosis in childhood. Her emphasis is naturally on the specific drug therapy available. It is, however, interesting (since diagnostic procedures are reviewed in most sections) that she does not mention the difficulties encountered, when using the intradermal tuberculin test, with cross reactions to fungous infections and to atypical mycobacteria.

Poisoning in childhood forms another section; the information is mainly in tabular form and is reminiscent of much that has been read elsewhere.

Discussion of pediatric surgical problems occupies 150 pages. Since the emphasis is on therapy rather than diagnosis, one wonders to whom these accounts are directed. However, for members of a pediatric house staff these chapters can provide good background material.

"Pediatric Therapy" is a very readable book which maintains a pleasing style throughout. Dr. Shirkey is to be congratulated on his avoidance of repetition in spite of the impressive number of contributors. Unfortunately, the very nature of this book demands frequent review of subject matter; perhaps a loose-leaf binding would be the answer. Nonetheless, the book is to be recommended to residents, general practitioners and pediatricians who feel the need for a very complete textbook of background information in the field of pediatric therapeutics. In his introduction Dr. A. Ashley Weech commends Dr. Shirkey on his career of hard work and diligence, and certainly the editing of such a volume could only have been accomplished by a man with exceptional interest in and devotion to "Pediatric Therapy."

HILARY E. C. MILLAR, M.D.

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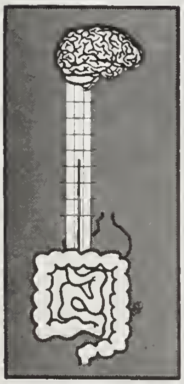

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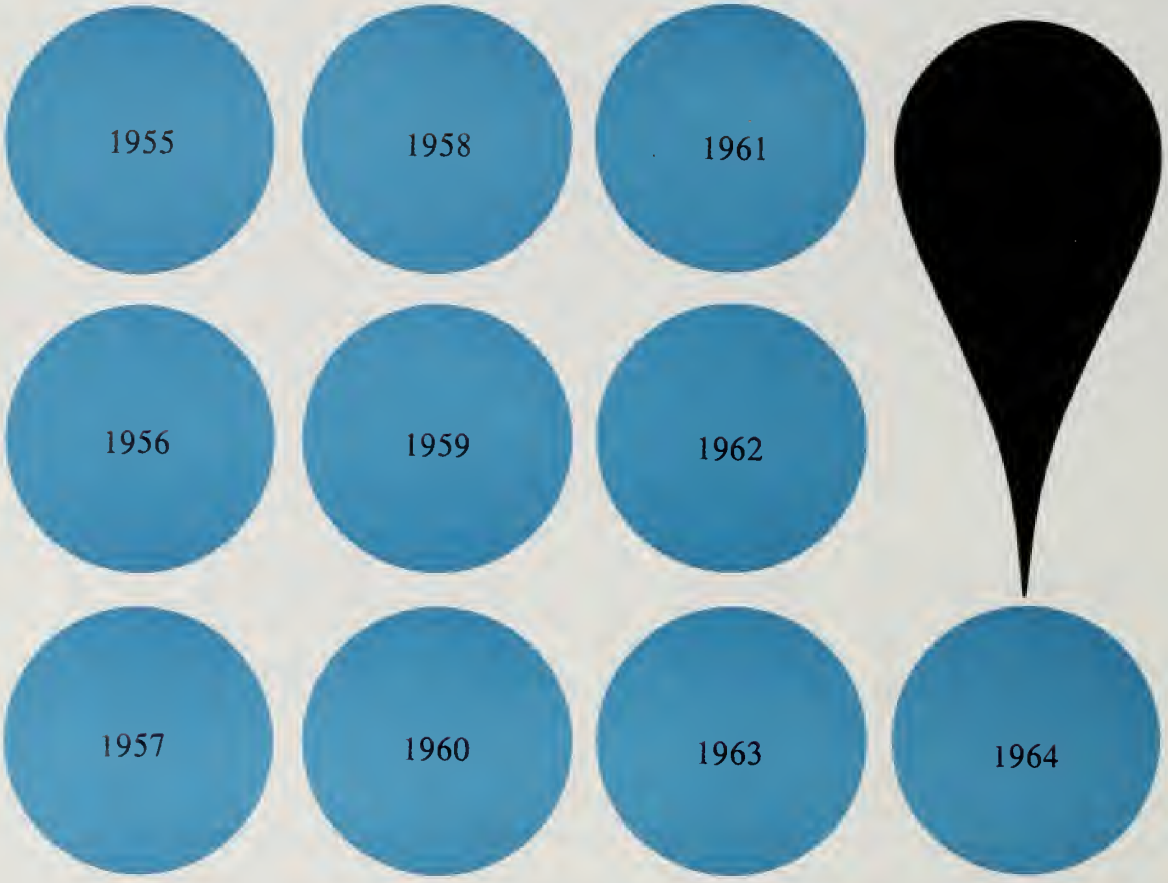

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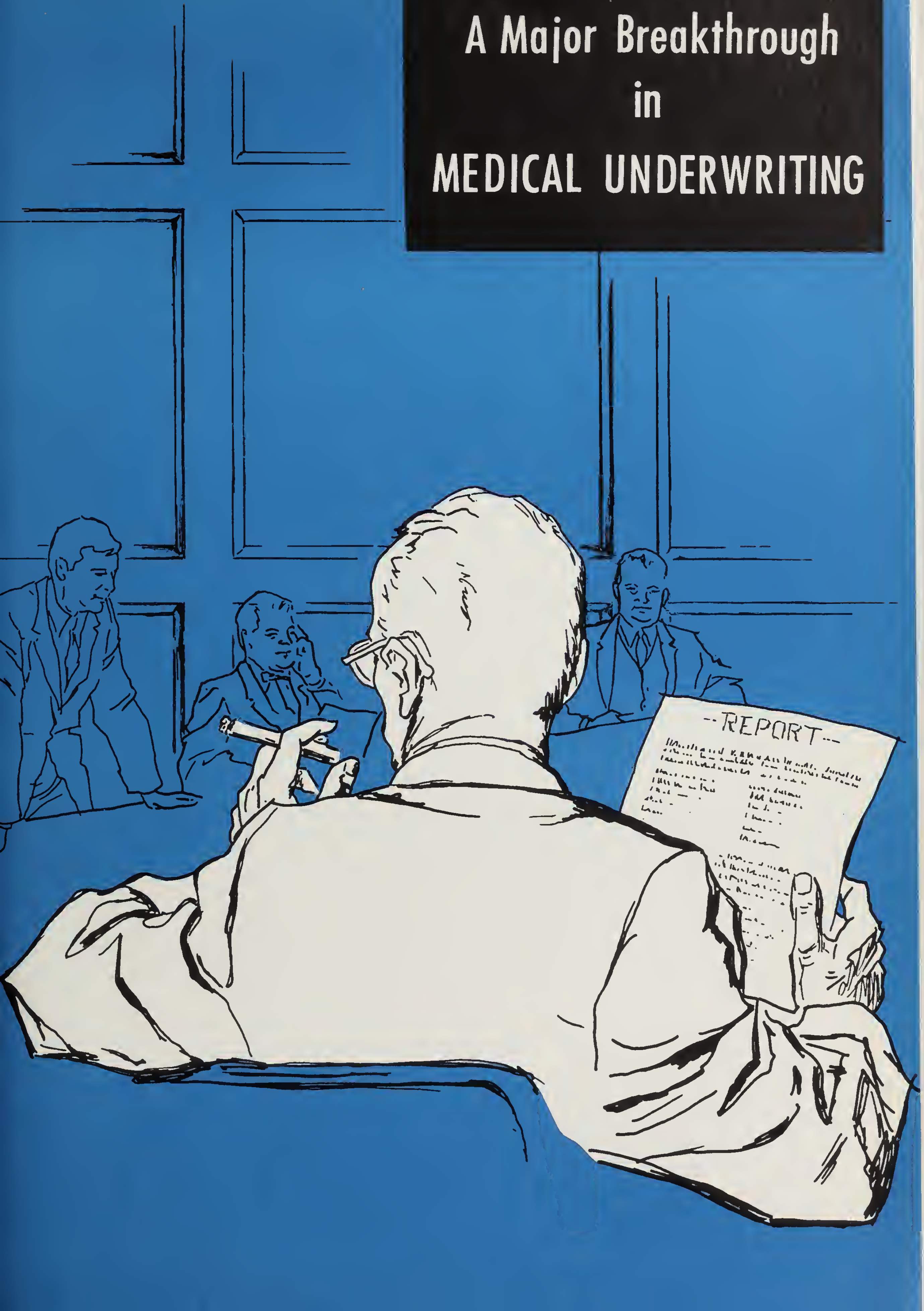

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1. Viglione, J.P.: Clin. Med. *69*:1157 (May) 1962.

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**MEDICAL ANNALS**
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*July 1964* VOLUME XXXIII • NUMBER 7

# A Study of Physician Variation in Heart-sound Interpretation*†

**ROBERT J. DOBROW, M.D.**

*Assistant Chief, Instrumentation Field Station (Public Health Service); Clinical Instructor in Medicine, George Washington University School of Medicine*

**JUAN B. CALATAYUD, M.D.**

*Assistant Professor of Medicine, George Washington University School of Medicine*

**SIDNEY ABRAHAM**

*Statistician, Instrumentation Field Station (Public Health Service)*

**CESAR A. CACERES, M.D.**

*Chief, Instrumentation Field Station (Public Health Service); Assistant Professor of Medicine, George Washington University School of Medicine*

Although cardiac auscultation is indispensable in clinical diagnosis, statistical evaluation of physician ability to determine the presence, absence, and characteristics of murmurs is lacking. Reports have pointed out that significant observer variation is present in the interpretation of electrocardiograms and chest roentgenograms.[1-7] The present study was designed to examine physician variation in heart-sound interpretation. In clinical auscultation divergent interpretations by physicians are sometimes due to the fact that they auscultate the patient at different times and the actual events they listen to are not the same. In the present study heart sounds were tape-recorded so that all physician-reviewers would listen to the same cardiac events. Five physicians trained in cardiology reviewed the tape-recorded heart sounds of 100 selected patients. Their observations were analyzed with regard to inter-observer variation and intra-observer variation in relistening.

## Material and Methods

Patients included in the study were selected from the outpatient clinics and inpatient services of 3 university hospitals and 1 public school cardiac clinic.‡ Patients were referred on the basis of the presence of a murmur indicated on their hospital chart.§ Two project physicians (R.D. and J.C.) reviewed these subjects, auscultated at apex and base, and listed their findings. Apex was taken as the point of maximal impulse and base as the third left intercostal space at the left sternal border. Both physicians had to agree that no murmur was present at both apex and base for the subject to be considered normal. Both had to hear the murmur for it to be considered present. This established the "standard" for comparison. If these phy-

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* From the Instrumentation Field Station, Heart Disease Control Program, Division of Chronic Diseases, Public Health Service, United States Department of Health, Education, and Welfare, and George Washington University School of Medicine.

† Presented in part, February 15, 1964, during the 13th Annual Meeting of the American College of Cardiology, held in New Orleans, Louisiana.

‡ Georgetown University Hospital, George Washington University Hospital, D. C. General Hospital, and Gale School Clinic, Washington, D. C.

§ Subjects with no murmurs were selected from the same clinic population.

**Table 1: 67 "Standard" Systolic Murmurs**

| Intensity | Grade I<br>21 | Grade II<br>18 | Grade III<br>19 | Grades IV–VI<br>9 |
|---|---|---|---|---|
| Present by oscillographic tracing | 15 (71.4%) | 17 (94.4%) | 19 (100%) | 9 (100%) |
| Murmurs identified by tape reviewers (range) | 9–15<br>(42.8%)–(71.4%) | 13–15<br>(72.2%)–(83.3%) | 17–19<br>(89.5%)–(100%) | 9 (100%) |

**30 "Standard" Diastolic Murmurs**

| Intensity | Grade I<br>11 | Grade II<br>9 | Grade III<br>9 | Grades IV–VI<br>1 |
|---|---|---|---|---|
| Present by oscillographic tracing | 6 (54.5%) | 7 (77.8%) | 8 (88.8%) | 1 (100%) |
| Murmurs identified by tape reviewers (range) | 0–4<br>(0%)–(36.4%) | 2–5<br>(22.2%)–(55.5%) | 6–8<br>(66.6%)–(88.8%) | 1 (100%) |

sicians disagreed on the intensity of the murmur present, the lower intensity listed was used as the "standard."

One hundred serial recordings were used as study cases. These included 23 persons without murmurs and 77 persons with 1 or more murmurs. There were among these 67 individual systolic murmurs and 30 individual diastolic murmurs. They are classified by their intensity in table 1. Approximately two-thirds of the cases were adults, one-third children.

Immediately following the direct auscultation, tape recordings were made of the patient's heart sounds at the exact apex and base positions auscultated. Each position was recorded for 30 seconds. Recordings were made with a portable tape recorder modified for heart-sound recording. The recording transducer was a contact microphone adapted with a "floating action" housing and battery-powered pre-amplification. The microphone employed is relatively insensitive to room noise. The microphone was used in conjunction with a chair with supporting arm (figure 1) which provided firm coupling of transducer to chest wall. Evaluation of the recording and playback system and the technique for its use have been described elsewhere.[8, 9]

In order to assess the ability of the tape system to accurately record heart sounds, photographic oscillographic tracings were made of the patients' tape-recorded heart sounds. These demonstrated that most murmurs of all grades were recorded by our system, although the percentage of Grade I murmurs recorded well was low. Since some murmurs evidently were not recorded, the agreement of tape reviewers with the "standard" could be limited by the amount shown in table 1. However, it is important to emphasize that all 5 physicians reviewed the same recordings; therefore, the range of their agreement with the "standard" remains a valid expression of observer variation.

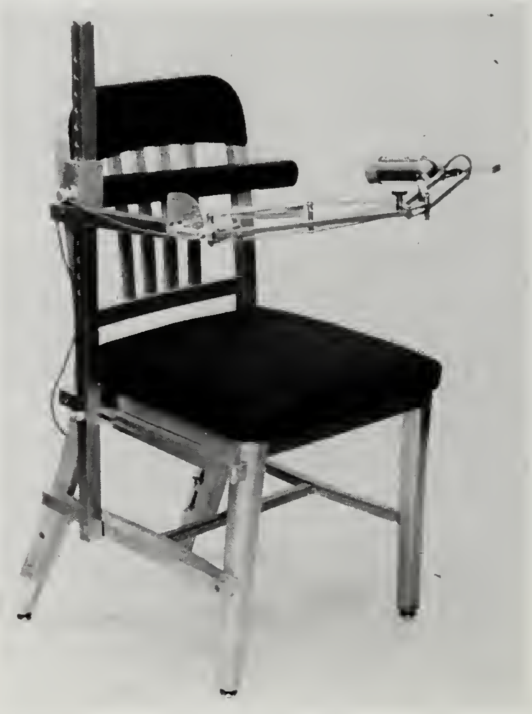

**FIG. 1. Heart microphone with chair and supporting arm to provide firm coupling of transducer to chest wall.**

Tapes were played back and monitored by physicians with headphones. The first 15 seconds of each recording was played back through a band-pass filter of 40–1,500 cycles per second (cps), the remaining 15 seconds through a narrow band-pass filter with center frequency at 300 cps, thus making identification of the "high frequencies" in certain murmurs easier.[10]

Each physician observed simultaneous oscilloscopic display of the heart sounds as he heard them.

The observations of 5 physicians who subsequently reviewed the recordings were compared with the "standard" with regard to the questions: "Is a murmur present?", "Is a murmur present in systole?", and "Is a murmur present in diastole?"

To provide data for analysis of individual observer's variation from one time to another, 3 physicians listened to the tapes 3 separate times a month apart and listed their observations.

## Results

*Inter-observer variation.* On the question, "Is a murmur present?" agreement of the individual listeners with the "standard" ranged from 72–77 per cent. Disagreement with the "standard" was subdivided into false negatives and false positives (table 2). By false negatives is meant the per cent of "standard" positives interpreted by reviewers as negative. By false positives is meant the per cent of "standard" negatives interpreted by reviewers as positive. Review of photographic oscillograms made from these 23 "standard" normals reveals the presence of vibrations which could be interpreted as low-grade murmurs in 8 subjects (34.8 per cent). Therefore, not all disagreements with "standard" represent observer error. However, even if one allows for this discrepancy, the range of reported false positives (26–65 per cent) is evidence of considerable observer variation.

**TABLE 2: Is a Murmur Present?**

| | RANGE | MEAN |
|---|---|---|
| Reviewer's agreement with standard | 72%–77% | 74% |
| False negatives (of 77 with murmurs) | 10%–26% | 21% |
| False positives (of 23 normals) | 26%–65% | 44% |

With respect to the question, "Is there a murmur in systole?" table 3 shows that the range of agreement of reviewers with the "standard" was approximately the same as that shown for all murmurs taken together in table 2. This reflects the predominance of systolic murmurs in the series of murmurs recorded for this study.

On the question, "Is a diastolic murmur present?" table 4 shows that reviewers' agreement with the "standard" ranged from 74 to 82 per cent of the 100 recorded cases. The false negatives were more frequent than in systole.

**TABLE 3: Is a Systolic Murmur Present?**

| | RANGE | MEAN |
|---|---|---|
| Reviewer's agreement with standard | 67%–74% | 71% |
| False negatives (of 67 with systolic murmurs) | 13%–28% | 22% |
| False positives (of 33 with no systolic murmurs) | 30%–64% | 45% |

**TABLE 4: Is a Diastolic Murmur Present?**

| | RANGE | MEAN |
|---|---|---|
| Reviewer's agreement with standard | 74%–82% | 79% |
| False negatives (of 30 with diastolic murmurs) | 40%–70% | 55% |
| False positives (of 70 with no diastolic murmurs) | 0%–20% | 7% |

It can be noted in table 1 that the greatest number of disagreements with "standard" were in subjects with murmurs of Grade I intensity; the more intense the murmur the less likely the chance of being missed and the narrower the range of responses by tape reviewers. Reviewers missed a greater percentage of diastolic murmurs than systolic murmurs at each intensity.

**TABLE 5: False Positives by Listeners Listed According to the Intensity of the Murmur Heard**

| Intensity | False Positive Systolic Murmurs | | | | False Positive Diastolic Murmurs | | | |
|---|---|---|---|---|---|---|---|---|
| | I | II | III | IV–VI | I | II | III | IV–VI |
| Listener B | 7 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| C | 6 | 5 | 3 | 0 | 1 | 1 | 0 | 0 |
| D | 10 | 7 | 3 | 1 | 1 | 10 | 2 | 1 |
| E | 9 | 4 | 1 | 0 | 1 | 0 | 0 | 0 |
| F | 6 | 1 | 5 | 2 | 2 | 0 | 3 | 1 |

As seen in table 5 false positive murmurs appeared up to Grade IV intensity. More false positives were heard in systole than in diastole. There were significant differences in the reporting of false positives by individual listeners.

Most Grade I systolic murmurs are "innocent" or of no hemodynamic significance. They are also the most frequently heard "false positive" murmur. It seemed reasonable, therefore, to reanalyze our data, eliminating all Grade I systolic murmurs from consideration. Table 6 shows results of individual's observations of the 46 systolic murmurs of Grade II or greater inten-

**TABLE 6: Is a Systolic Murmur Present of at Least Grade II Intensity?**

| Listener | Standard | | | | Per cent Agreement (a + d)/100 | Per cent False Negatives b/(a + b) × 100 | Per cent False Positives c/(c + d) × 100 |
|---|---|---|---|---|---|---|---|
| | Of all 46 subjects with Systolic Murmur ≥ II, the number called | | Of all 54 subjects with no Systolic Murmur ≥ II, the number called | | | | |
| | a Positive | b Negative | c Positive | d Negative | e | f | g |
| B | 39 | 7 | 3 | 51 | 90 | 15.2 | 5.6 |
| C | 39 | 7 | 8 | 46 | 85 | 15.2 | 14.8 |
| D | 43 | 3 | 11 | 43 | 86 | 6.5 | 20.4 |
| E | 40 | 6 | 5 | 49 | 89 | 13.0 | 9.2 |
| F | 40 | 6 | 7 | 47 | 87 | 10.9 | 14.8 |
| Mean | 40 | 6 | 7 | 47 | 87.4 | 12.2 | 13.0 |

sity. Agreement with the "standard" increased to 87.4 per cent and ranged from 85 to 90 per cent.

*Intra-observer variation.* Three physicians listened to the tape recordings of the 100 cases 3 separate times at monthly intervals. Results of any completed run were not made known to the reviewer.

**TABLE 7: Is a Murmur Present?**
INTRA-OBSERVER VARIATION

| | Run I | | Run II | | Run III | |
|---|---|---|---|---|---|---|
| | Number | Per cent | Number | Per cent | Number | Per cent |
| Listener F | | | | | | |
| Agreement with standard | 72 | 72 | 74 | 74 | 73 | 73 |
| False positives | 11 | 47.8 | 12 | 52.2 | 13 | 56.5 |
| False negatives | 17 | 22.1 | 14 | 18.2 | 14 | 18.2 |
| Number of changes | | | 21 | | 20 | |
| Listener G | | | | | | |
| Agreement with standard | 82 | 82 | 76 | 76 | 79 | 79 |
| False positives | 7 | 30.4 | 6 | 26.1 | 5 | 21.7 |
| False negatives | 11 | 14.3 | 18 | 23.4 | 16 | 20.8 |
| Number of changes | | | 14 | | 19 | |
| Listener H | | | | | | |
| Agreement with standard | 68 | 68 | 75 | 75 | 81 | 81 |
| False positives | 13 | 56.5 | 6 | 26.1 | 8 | 34.8 |
| False negatives | 19 | 24.7 | 19 | 24.7 | 11 | 14.3 |
| Changes | | | 25 | | 30 | |

Table 7 analyzes results of the 3 runs with respect to the presence of a murmur. There was no significant improvement except for Reviewer H. His percentage agreement with "standard" rose from 68 per cent on the first run to 81 per cent on the third run. Reviewers changed their answers on the average 21.5 times from run to run. Thus, if a reviewer's first-run observations were considered to be "standard" for his subsequent run, he would not exceed 78.5 per cent agreement with himself, though the per cent agreement with the original "standard" remained nearly constant.

## Discussion

Inter-observer variation was surprisingly large as evidenced by the wide range of false-negative and false-positive observations by listeners reviewing the same heart sounds.

It is interesting to note that all 5 physician-listeners gave the same answer to the question "Is a murmur present?" in only 53 of the 100 cases. Opinion was divided in the other 47 cases.

Some of the observers were more conservative in their interpretation than others. For example, Reviewer D had a high index of suspicion and identified more "standard" Grade I systolic murmurs than other reviewers. However, he over-read subjects without murmurs and had the greatest number of false positives. On the other hand, Reader B was more conservative and had the least number of false positives. His caution led him to miss all the "standard" Grade I diastolic murmurs.

The results of listening on repeat runs showed that on the average each reader agreed with himself on 78 per cent of the cases. This intra-observer variation was certainly greater than was anticipated. This suggests that caution is warranted in weighting single observations of auscultatory events.

## Summary

To assess inter-observer variation in heart-sound interpretation the tape-recorded heart sounds of 100 selected subjects were reviewed by 5 physicians trained in cardiology. Their observations were compared with respect to a

(*Continued on page 355*)

# Hearing-screening of School Children

**PETER A. CAMPANELLI, M.A.**

*Chief, Division of Audiology and Speech Pathology, Bureau of Maternal and Child Health, District of Columbia Department of Public Health*

**MORRIS E. KRUCOFF, M.D.**

*Consultant in Otolaryngology, Division of Audiology and Speech Pathology, Bureau of Maternal and Child Health, District of Columbia Department of Public Health*

**LOIS DiLOSA, M.A.***

*Instructor, Department of Speech and Drama, The Catholic University of America*

THE USE AND VALUE of pure-tone audiometry for screening the hearing proficiency of school populations has been accepted as a worthwhile endeavor by medical, educational and audiologic specialists. Varying results have been reported during the past 30 years, however, due to differences in pass-fail criteria employed in hearing-screening programs.[1-6]

A basic purpose for the conduct of a mass screening or identification program, regardless of the specific area of investigation, is to select those individuals who may require special attention or care because of their inability to meet certain stated criteria. Thus, a test procedure is administered to a large number of persons who are required to perform at a certain level of proficiency. Those who "fail" to do so are thereby "screened-out" to receive special attention. This attention may be medical, audiologic, psychologic, or pedagogic in nature.

Needless to say, the goal of every screening program is the attainment of a test procedure which is rapid, economical, and valid. That is, the procedure must demonstrate its practicality by being able to test a large number of persons in a short period of time without sacrificing its ability to detect those who are in need of special help.

Hearing-screening, or identification audiometry, programs for school children function in the same manner. But, too often, the primary reason for conducting this type of survey is overlooked or not completely realized. There is often reflected the attitude that when a child fails a pure-tone hearing-screening test, it is tantamount to a diagnosis of a hearing loss. In holdng to such an opinion the main purpose of a screening program is unappreciated, i.e., to identify those children who may require special attention. A screening procedure essentially is solely a case-finding technique and should not be considered diagnostic in scope. A definitive confirmation of a hearing loss can be made by means of a clinical hearing test in the follow-up procedure. This involves the use of a pure-tone audiometer measuring threshold responses in a controlled acoustic setting.

An identification audiometry program in the District of Columbia is conducted annually by the staff of the Audiology Clinic of the Bureau of Maternal and Child Health, D. C. Department of Public Health. Its personnel coöperate with the Division of School Health Services, the Board of Education, and the Archdiocesan Office of Education to test the junior primary, first, and third-grade children of all public and parochial schools in the District of Columbia. In addition, the Audiology Clinic staff provides inservice training and pure-tone audiometers to public school nurses who test the children in grades 7 and 10 on an annual basis. As an example, for the academic year beginning September 1962 and ending June 1963 the following totals were screened: public and parochial elementary school, 22,650 children, and public secondary schools, 10,290 children. Since 1957 a total of 189,188 children in the local school system have received this service.

Currently, when a child "fails" the hearing-screening test in school the parents are notified that a follow-up hearing test is to be done at the Audiology Clinic. This retest serves to establish the presence or absence of a hearing defect in quantitative terms under highly controlled conditions. It also affords a reliability check of the child's initial test responses, which, in certain instances, may not be too valid.[7] If the child also fails this follow-up clinical hearing test the parents are advised to obtain an otolaryngologic examination for their child. Two alternatives are suggested. The parents may wish to have their family physician provide medical treatment if the hearing defect is reversible. On the other hand, in cases in which private service is not possible the child may be examined in the Ear, Nose and Throat Section of the Audiology Clinic by the staff otolaryngologist. In all cases, when medical treatment is completed the parent is requested to return the child for another audiologic test, and a unified oto-audiologic report is sent to the private physician, school principal, school doctor, and school nurse. Thus, in the majority of cases close contact is available to follow up the need for medical treatment.

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* Formerly on the staff of the Bureau of Maternal and Child Health, District of Columbia Department of Public Health.

This paper is an analysis of the individual pure-tone hearing-screening records of incidental samples of elementary school children enrolled in the District of Columbia.

The purpose of the study was an attempt to analyze the use of pure-tone test frequencies, either singly or in combination, to ascertain if some tonal frequencies could be discarded in the interest of efficiency in testing and validity of responses. In addition, a tabulation was provided of the otologic examinations performed and the resultant hearing levels. It was hoped that a clearer picture would emerge of some of the variables operating in identification audiometry with these groups of children.

## Procedure

This study reports the hearing-screening of 2 school populations by the individual pure-tone method. Group A consisted of an incidental sample of 4,393 children enrolled in the fourth grade. Group B was composed of an incidental sample of 3,000 children enrolled in the first and third grades. The children were selected for this study on the basis of being the first 25 children tested each day by each tester in separate schools. The children comprising both groups were tested in the normal course of the screening procedure of their individual grades.

Examiners from the Audiology Clinic of the Bureau of Maternal and Child Health, using standard pure-tone audiometers, tested each ear of every child with the tonal frequencies 125, 250, 500, 1,000, 2,000, 3,000, 4,000, 6,000, and 8,000 cycles per second (cps). The screening intensity level was 20 decibels hearing level above normal threshold for each tonal frequency. "Failure" criterion was denoted as a response poorer than the screening level in 1 or more pure-tone frequencies in either ear.

During the screening procedure, necessary requirements for a controlled test situation were met. These factors included physical and biologic calibration of audiometric equipment, experienced examiners, adequate reliability standards, and minimum criteria regarding adequate control of environmental noise.

For the follow-up test of the failures in the Audiology Clinic, each child was scheduled for a 30-minute session. The evaluation included taking a brief history relative to the ears, nose and throat, genetic development, school progress, and general emotional and social growth. This was followed by testing of the child by means of pure-tone threshold audiometry. In addition, speech audiometry was also employed to assess the child's hearing and understanding of verbal stimuli.

The ear, nose and throat examinations were conducted by one of the authors (M.E.K.) following the audiologic measurements when hearing thresholds were below normal. For all examinations, whether otologic or audiologic, the child was accompanied by a parent to provide the necessary information relative to auditory difficulties.

## Results

The Group A case load, as stated previously, consisted of 4,393 fourth-grade children. Of this category 296 children (or 6 per cent) did not pass the screening criterion. This "fail" group consisted of 170 males and 126 females, classified as 241 Negro, 53 Caucasian, and 2 Oriental children. The mean age of this group was 10.4 years.

The Group B case load was composed of 3,000 children with relatively equal distribution between the first and third grades. For purposes of this study grades 1 and 3 are reported as a single entity with reference to ear conditions but are separated regarding the tabulation of pure-tone test frequencies. A total of 94 children (or 3 per cent) in Group B did not "pass." The sex and race distributions were 56 males and 38 females, classified as 75 Negro and 19 Caucasian.

The hearing-screening level responses of the children who "failed" in each of the 2 groups were punched out on IBM cards by the Biostatistic Section of the D. C. Department of Public Health. These cards were then tabulated. This method served to expedite the assessment of the tonal frequency, or combination of frequencies, which were most efficient in detecting the greatest number of children in each "fail" group. That is to say, tallies could then be made of the number of children who "failed" different combinations of the screening frequencies.

In considering both Groups A and B, the results indicated that the tonal frequencies of 125, 250, and 500 cps were noncontributory. This refers to the finding that all children in both groups who failed these screening frequencies also failed at 1 or more of the other test frequencies (1,000, 2,000, 3,000, 4,000, 6,000, and 8,000 cps). In other words, with regard to case-finding ability, the 3 lowest tonal frequencies (125, 250, 500 cps) were superfluous as far as these 2 particular groups of children were concerned. One could conclude from this that the use of these pure tones offered little to the detection of these children as long as the other tonal frequencies were employed in the screening battery. This finding is in good agreement with recently published recommendations for the conduct of school hearing-screening tests.[8]

Table 1 lists the combination of tonal frequencies with their incidence of detection ability and the percentage of children who failed in Group A. It is interesting to observe that if the tonal frequency of 4,000 cps had been employed as the sole screening measure, as initially proposed by Glorig and House[9] in 1957, a total of only 64 per cent of these children would have "failed." This percentage is considered a rather loose screening measure and is only slightly better than that due to chance. If the sole frequency of 6,000 cps had been employed, the detection level would have risen somewhat but still would have accounted for only 71 per cent of Group A. The findings in table 1 suggest that a higher percentage of "failures" are detected as pure-tone frequencies above 1,000 cps are included in the screening procedure.

The tabulation for Group B is listed in table 2. This computation is subdivided into first and third grades, as well as the combined detection ability. As in table 1 the relatively small percentages of "failures" should be noted if the single tonal frequency of 4,000 cps had been employed, as originally suggested by Glorig and House in 1957.

An inspection of tables 1 and 2 suggests the conclusion that more and more "failures" are detected in these 2 groups as one correlates tonal frequencies at 1,000 cps and above. One might be tempted to view the 3 pure-tone frequencies—4,000, 6,000, and 8,000 cps—as being highly effective in screening out those children who would require closer observation.

**TABLE 1: Pure-tone Frequency Combinations Tested with Percentage of Fourth Grade Children Failing Screening Test**

(Sample N = 296 Children)

| Children Failing, Per cent | 500 | 1,000 | 2,000 | 3,000 | 4,000 | 6,000 | 8,000 |
|---|---|---|---|---|---|---|---|
| 64 | | | | | X | | |
| 71 | | | | | | X | |
| 77 | X | X | X | | X | | |
| 84 | | X | X | | | X | |
| 84 | X | X | X | | | X | |
| 87 | | | | | X | X | |
| 90 | | | | | X | X | X |
| 94 | | X | | | X | X | |
| 94 | X | X | | | X | X | |
| 96 | | X | X | | X | X | |
| 96 | | X | | | X | X | X |
| 98 | | X | | X | X | X | X |
| 99 | | X | X | X | X | X | X |

**TABLE 2: Pure-tone Frequency Combinations Tested with Percentage of First and Third Grade Children Failing Screening Test**

(Sample N = 94 Children)

| Pure-tone Frequency Tested | Children Failing | | |
|---|---|---|---|
| | First Grade (N = 47 Children) | Third Grade (N = 47 Children) | Combined |
| | *Per cent* | *Per cent* | *Per cent* |
| 4000 | 77 | 75 | 76 |
| 500, 1000, 2000, 6000 | 77 | 85 | 81 |
| 500, 1000, 2000, 4000 | 78 | 85 | 81 |
| 4000, 6000 | 94 | 85 | 89 |
| 500, 2000, 4000, 6000 | 94 | 94 | 94 |
| 500, 1000, 4000, 6000 | 94 | 88 | 93 |
| 1000, 2000, 4000, 6000 | 94 | 94 | 94 |
| 4000, 6000, 8000 | 98 | 87 | 93 |
| 1000, 4000, 6000, 8000 | 98 | 98 | 98 |

One of us (M.E.K.) found that some children with high-tone losses, upon otologic examination revealed no ear, nose and throat disorders. Subsequent audiologic evaluation of these children has indicated that they suffer no defect regarding their social adequacy for the learning of, or listening to, connected speech. If this be the case then, the argument continued, these children should not be considered as "failures" nor should they be regarded as having "hearing losses."

To test this assumption a member of our staff assessed 100 ears of 71 children having high-tone losses at solely 4,000, 6,000, and/or 8,000 cps from the first and third grades who appeared at the Audiology Clinic for both an audiologic evaluation and an ear, nose and throat examination. A comparison was made of their audiologic records and the results of the ear, nose and throat examinations. In this particular group of 100 individual ears, only 2 ears (2 per cent) displayed some sort of ear, nose and throat trouble in combination with reduced acuity for the pure tones 4,000, 6,000, and 8,000 cps, either singly or in combinations. This result suggests that the criteria for the intensity level of screening might be reduced, or given less weight, for 4,000, 6,000 and/or 8,000 cps when employed in a test battery with the middle frequency tones of 1,000 and 2,000 cps.[10]

### Clinical Follow-up

It is well to recall that 296 children from Group A did not pass the hearing-screening test. From this group a total of 124 children (or 41 per cent) presented themselves to the Audiology Clinic for complete audiologic evaluations, which included air- and bone-conduction threshold tests and speech audiometry. Following these retests 77 children (or 62 per cent) failed the hearing threshold tests and were examined in the Ear, Nose and Throat Clinic.

This latter group consisted of 42 males and 35 females, classified as 60 Negro, 16 Caucasian, and 1 Oriental. The following conditions were noted: 12 children (16 per cent) had no abnormal physical findings; 53 children (70 per cent) had tonsil and/or adenoid disease; 31 children (41 per cent) had some form of aural trouble; and 17 children (22 per cent) had nasal disorder. Ear, nose and throat treatment was recommended for, and received by, 28 children from this category. The recommendations included the following: 15 children for irrigation for removal of impacted cerumen or foreign bodies; 4 children for politzerization treatments; 7 children for tonsillectomy and/or adenoidectomy; and 2 children for myringotomy.

Upon completion of the recommended treatment 25 children returned to the Audiology Clinic for subsequent hearing tests. One child showed slight improvement but did not return to normal levels because of an irreversible neurosensory component, and 24 children demonstrated normal acuity for pure tones and speech stimuli. Six children (5 male and 1 female) in this group of 77 children failing the initial retest exhibited uniaural neurosensory hearing impairments ranging from mild to severe in degree and would not be expected to benefit from otologic treatment. However, special educational consideration regarding seating arrangements in the classroom situation was advised.

The second category of cases, Group B, was composed of 3,000 children from the first and third grades who were screened relative to their hearing abilities. A total of 94 children (3 per cent) "failed" this test, and 56 children (60 per cent) were evaluated further in the Audiology Clinic. In this latter group 30 children (or 53 per cent) also failed the clinical hearing threshold measurements and were examined by the staff otolaryngologist. The distribution of ear, nose and throat lesions, as expected, was not dissimilar to the Group A findings, except that the incidence of nasal trouble in the B Group was somewhat less than in the A Group. Ear, nose and throat treatment was advised for 19 children, and on subsequent retest of 13 of these children normal hearing was demonstrated. Four children displayed uniaural neurosensory hearing defects and appropriate school recommendations were made for special seating arrangements.

### Discussion

A careful perusal of the literature regarding school identification audiometry programs reveals a history of a wide variety of methodologies for conducting these surveys. Prior to the advent and stabilization of the pure-tone audiometer mass school-hearing surveys were not practical unless one employed the recorded phonograph tests or so-called "fading-numbers" procedure. This latter method left much to be desired regarding its ability to detect children even with moderate hearing defects. This drawback was due simply to the acoustic spectrum of the speech stimulus employed on the records which placed great emphasis on low-tone acuity. As a result many children with educationally-significant hearing losses often went undetected and unappreciated.

In recent years both medical and audiologic specialists have paid increasing attention to the techniques of "identification audiometry." There has been an attempt to improve their validity in testing large groups of individuals, whether it be for pre-induction or pre-employment screening, or in the case of denoting hearing changes in certain military or occupational duties. Finally, the great bulk of our pediatric population enrolled in school programs is receiving closer attention.[11] In line with this particular segment of our population, research continues to devise and extend suitable screening methods for testing preschool children as well.[8, 12]

Our diverse experiences, both in the areas of identification audiometry and in clinical testing situations, have encouraged us to prepare these observations which we herewith tender for consideration.

1. Some individuals have suggested that low-tone hearing losses are rather widespread among children with aural trouble consisting of impacted cerumen in the external meatus or fluid in the middle-ear cavity. For the most part, advocates of this position have emphasized the need for including low-tone frequencies in a screening battery of test tones. Our observations of audiologic results would tend to question these statements. An analysis of some 50 pediatric ears with observed impacted cerumen demonstrated normal acuity for the low tones with greater losses in the middle tones (1,000 and 2,000 cps) and high tones (4,000 and 6,000 cps). These findings support the premise of the impedance formula as set forth by Campbell,[13] and we believe it affords further validity to our tabulation findings for excluding the low-tone frequencies in a screening battery. Similar recommendations have also been made due to the interfering effects of environmental noise.[8]

2. Too little attention has been paid, we believe, to some of the variables inherent in pediatric identification audiometry programs. Among these are included sex, age, race, and geographical factors which may have important bearing on the manner in which such surveys are conducted and the results analyzed on a nationwide basis. These problems are currently receiving careful scrutiny.[11]

3. More intensive consideration should be directed toward the "mechanical" aspects of conducting school identification audiometry programs. Often rigid control of factory calibration procedures for audiometers is woefully lacking. It has not been unusual to find audiometers in field use which are not in calibration relative to certain mechanical outputs.[11] Much remains to be done in this area as a continual check on the stability of the pure-tone audiometers which are employed in testing school children. In addition, because of budgetary limitations or inexperience in programs responsible for conducting school identification audiometry surveys, unskilled personnel may often be employed and entrusted with the responsibility of performing the actual auditory test measurements. Too often such programs are in the hands of well-meaning individuals who may not possess the necessary training or clinical experience to conduct and supervise testing procedures. An equal danger exists in the use of questionable methodologies in the determination of hearing acuity in school children other than by discrete pure-tone testing. Reference is made to the responses of a child to the watch-tick, coin-click, or spoken-voice practices which are sometimes employed as a "test" of hearing. It has been evident that these latter procedures are invalid as an accurate quantitative measure of hearing acuity in children. Properly administered pure-tone audiometric tests serve to detect about 13 times more children with hearing defects than all these unreliable methods combined.[1]

4. With reference to school identification audiometry the best test of hearing often lies in the child's academic achievement. When the child does not hear well he will often not do well in school subjects. This is true particularly in those academic subjects placing emphasis on aural learning, such as reading and spelling. Children with significant undetected hearing defects repeat, on the average, 2 grades in the school system in which they are enrolled. Our clinical observations do not indicate otherwise. Too often children in school environments who exhibit undetected significant auditory defects are regarded as "dull," "stupid," "listless," "inattentive," a "troublemaker," or a "dreamer."

We are reluctant to report that many such children have come to our attention after repeating a grade 2 or 3 years in succession. It behooves those who have the daily responsibility of instructing children to explore the reasons why a child does not progress academically. Referring the child for an evaluation to rule out a hearing defect as a contributing factor should be an important consideration. Aside from purely humanitarian and psychoemotional factors, the financial cost of grade-repeaters to the educational system should be borne in mind.

The successful management and progress of the school identification audiometry program in the District of Columbia relies on the cooperative interaction of 4 entries. These are: (1) school personnel, namely, the principal, classroom teacher, school doctor, and school nurse, (2) the staff and facilities of the Audiology Clinic for the hearing-screening procedure and follow-up evaluation, (3) the family physician or ear, nose and throat specialist in the community who provides medical examination and treatment, and (4) the parents and the child involved.

The formal application of hearing-screening tests in a school system does little more than provide a statistical concept of those children who do not meet the current standards of adequate hearing abilities. The reward of such earnest labors evolves when the maximum number of these children make themselves available for definitive follow-up procedures. Thereby, appropriate medical, audiologic and educational recommendations may be formally instituted and implemented. Therein lies the true worth of an identification audiometry program for school children.

### Summary

Two groups of elementary school children who received a complete tonal frequency hearing-screening test were analyzed regarding the possibility of reducing the number of tonal frequencies for screening purposes. Combinations of pure-tone frequencies were tabulated relative to the percentage of failures detected. The results of otologic findings and recommendations were also listed.

Based on our observations and experiences certain considerations were proposed for the conduct of hearing-screening programs relative to school children.

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## Patients Needed for Study of Acromegaly

The coöperation of physicians is requested in the referral of patients with acromegaly for a study currently in progress at the Clinical Center by the National Institute of Arthritis and Metabolic Diseases.

Acromegaly is characterized by enlargement and thickening of the hands, feet, and facial features, as well as by the generalized visceromegaly, glucose intolerance, and loss of body fat. Growth hormone, produced in excess by pituitary adenomas, is responsible for these characteristic changes.

A new specific assay of plasma growth hormone has been developed, permitting early diagnosis in doubtful cases and objective evaluation of progression and of effects of treatment.

Diagnostic studies, before and after treatment, will require several weeks. The referring physician may elect either to treat the patient himself or to have NIH administer treatment. Upon completion of the study, in either case, the patient will be returned for followup care to his referring physician, who will receive a complete narrative summary.

Physicians who wish to have patients considered for this study may write or telephone Dr. Jesse Roth, Clinical Endocrinology Branch, National Institute of Arthritis and Metabolic Diseases, Bethesda, Md. 20014; telephone 496-5761.

# Myocardial Ischemia, T-wave Changes, and Control of Ischemia

DAVID HALBERSLEBEN, M.D., F.A.C.P.

*Brookline, Massachusetts*

**A** 31 PER CENT DEATH RATE for the first gross myocardial infarction among employed personnel[1] and sudden death as the first recognized manifestation of arteriosclerotic coronary artery disease in 16 per cent of the women and 17 per cent of the men developing myocardial infarction in a recent 6-year community study[2] should be stimuli to earlier recognition and treatment of ischemic heart disease than is now customary. It is as important as life or death to many patients that the early stages of ischemic heart disease be recognized promptly in order to apply preventive, delaying, or partially curative measures which are now or will later be available.

The first 2 case reports give evidence of the simple but fundamental concept that ischemic heart disease is a result of imbalance between oxygenated blood supply and the need for oxygenated blood by the working heart muscle. The mediation of sudden or complete coronary artery occlusion is not a *sine qua non.* The second illustrates additionally that ischemic degeneration may be microscopic bit by microscopic bit which may add up to a grossly confluent mass containing varying stages of degenerating or replaced myocardium. The fourth case shows that electrocardiographic changes may accurately indicate the coronary arterial branch which is narrowed. Cases 3 to 6 all illustrate electrocardiographic usage in the recognition and management of presumed ischemic myocardial degeneration in patients, some of whom were completely asymptomatic at the time of episodes of degeneration. It may be possible to spare lives now needlessly cut short if ischemic heart disease in the early stages is recognized and appropriate treatment instituted.

## Report of Cases

**Case 1.** A 61-year-old woman with extensive bony metastases from a carcinoma of the stomach, asymptomatic except for massive bleeding 9 years and again 10 months earlier, had erythrocytes of 1.9 million and platelets of 5,000 per cu. mm. on April 3, 1961. Because of her relative comfort, life was maintained for a month by transfusion of 14 units of citrated whole blood. Each transfusion of 1 or 2 units brought increase of the erythrocytes for a matter of 3 or 4 days at the most. The erythrocytes were 1.3 million and platelets 10,000 per cu. mm. on May 3, 1961, a few hours before death. The range of pulse rate was mostly 80 to 90 per minute from April 5 to 15, mostly 80 to 100 from April 15 to 28, and mostly 100 to 120 from April 29 to May 3, 1961. The patient spent little time out of bed because of lack of strength. Constricting pain in both shoulder blades and the upper mid-front of her chest occurred on April 30, 1961. Electrocardiograms (ECG) of April 30 and May 1 showed no abnormal Q waves, slight depression of the ST segment in leads 1, 2, AVL, $V_5$ and $V_6$, and slight elevation of ST in leads AVR and $V_1$. T waves were of normal direction but small in leads 1, 2, and $V_3$–$V_5$, with T in $V_4$ measuring only 0.2 mm. A deep, narrow Q was present in lead AVF on May 3, there was less displacement of the ST segment except in AVL, and T had become smaller in leads 1, AVR, and AVL, but larger in all chest leads. Transfusions were discontinued after April 29, 1961, and the patient died on May 3, 1961.

Autopsy* showed acute infarction of the interventricular septum and the anterior wall, and infarction apparently a week or 2 older in the apical portion of the left ventricle. Photomicrographs showed the lesions (figure 1). The coronary arteries on the cardiac surface had thin, pliable walls with a few irregular yellow to grayish-white plaques. These plaques narrowed the lumens of the left and right coronary arteries near their orifices to possibly one-third of the expected diameter. Microscopic study showed within the infarcted region 2 intimal thickenings in a moderate-sized intramyocardial branch of a coronary artery.

It is obvious that the factors causing myocardial infarction were largely the extreme and continuing anemia and the increased work of the heart in pumping the blood of low oxygen-carrying capacity to the various body tissues. Partial obstruction of the flow of blood through the coronary arteries was an additive factor.

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* Autopsy by Joseph C. Merriam, Jr., M.D., now pathologist at Veterans Administration Hospital, White River Junction, Vermont.

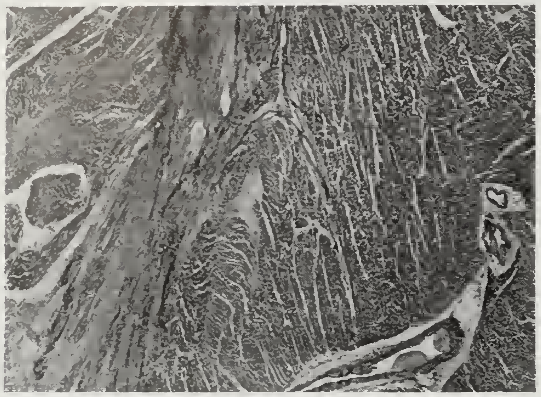

**FIG. 1. Case 1. Left ventricular apex—2 large humps of fibrous thickening of arterial intima in lower right corner. Myocardial cells above retain normal form and staining but have slight polymorphonuclear leukocytic infiltration. Broad band of lighter staining tissue extending upward and medialward from lower left corner is of vascularizing early scar tissue of asymptomatic infarction occurring a couple of weeks before death.**

**Case 2.** A 78-year-old man was examined on January 8, 1959 because of chest pains, shortness of breath, and cough. Ten years earlier he had been kept in bed for a week because of chest pain coming on while going to work. There had been pains in the front of his chest on stooping or on working a little for over a year prior to the present acute illness. Severe chest pain occurred 11 days before examination immediately after walking back upstairs to his second-floor apartment because of feeling too tired to go for an auto ride. Severe chest pain recurred just after getting into bed, 2 days before examination. The patient had little chest pain while under treatment but remained weak. He died in his sleep on January 26, 1959.

An ECG of January 8, 1959 showed ST-segments depressed in leads 1, 2, AVF, $V_5$, $V_6$, and $V_7$ and elevated in AVR. There was absolutely no Q in leads 1, 2, AVL, AVF, or $V_2$-$V_7$. Tracings made January 12, 14 and 20 showed slight subsidence of the ST-segment deviation and slight lowering of T in $V_{1-3}$ (digitalis had been started immediately following the first ECG).

Autopsy showed a severe stenosis of the aortic valve due to deposits of calcium on the inner aspect of each cusp. The stenosed aortic valve was a built-in cause for continuous extra work for the heart. Recent infarction was grossly evident in much of the interventricular septum, spreading down into the subendocardial portion of the lower apical region of the left ventricle. All coronary arteries were narrowed, but there was no thrombus. The verbatim report of Philip M. LeCompte, M.D.* regarding microscopic studies is of great interest.

"Sections of the myocardium reveal areas of injury of widely varying ages. In many regions there are patches of very old, dense, collagenous tissue, months to years in age. A considerable area of this type is seen in the interventricular septum and also in the upper posterior wall of the left ventricle. However, other small patches of this old fibrous tissue are seen in almost all sections. In other regions and in some cases contiguous to the zones of old scarring there are small patches of fresh necrosis, indicated by brightly acidophilic muscle fibers without nuclei. The most frequent lesion of all consists of a group of spindle-shaped or oval cells with large nuclei and often with some pigment in the cytoplasm, together with an apparent increase in small capillaries. These foci are, for the most part, quite small, replacing 2 or 3 muscle fibers in a limited area. The cells seem to consist in part of the swollen endothelium of surviving capillaries and in part of histiocytes which are evidently removing the débris of a small focus of necrosis. These small foci are remarkably numerous, being seen in all sections of the myocardium of the left ventricle. These foci are sometimes surrounding or adjacent to groups of necrotic muscle fibers. In other places they are near or in the same section as foci of old scarring. There is no discernible lesion of the small blood vessels to correlate with the small foci of necrosis. The coronary arteries all show remarkably similar changes in that all are extremely narrowed by very old atheromatous changes in which there is massive fibrous thickening of the intima with calcification and some remaining necrotic débris; in places there are small accumulations of lymphocytes. In the plaque in the right coronary there is a focus of cellular infiltration and a small amount of fibrin. No thrombus is found.

"The heart is remarkable in showing so many stages of infarction, and particularly the small cellular foci which are so widely distributed. These apparently represent the 'myocytolysis' of Schlesinger."

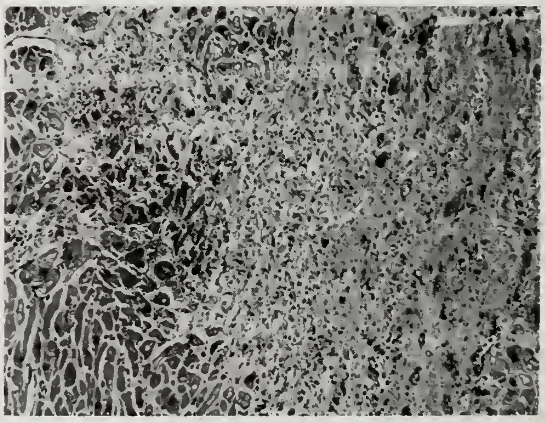

**FIG. 2. Case 2. Left ventricular lateral wall—cells of nearly normal staining in lower left corner; some vacuolated myocardial cells at upper and medial border of these; vascularized scar tissue in central portion; dense collagen with scattered myocardial cells to the right. Widely differing stages of degeneration and replacement in 1 small microscopic area.**

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* Pathologist, Faulkner Hospital, Boston.

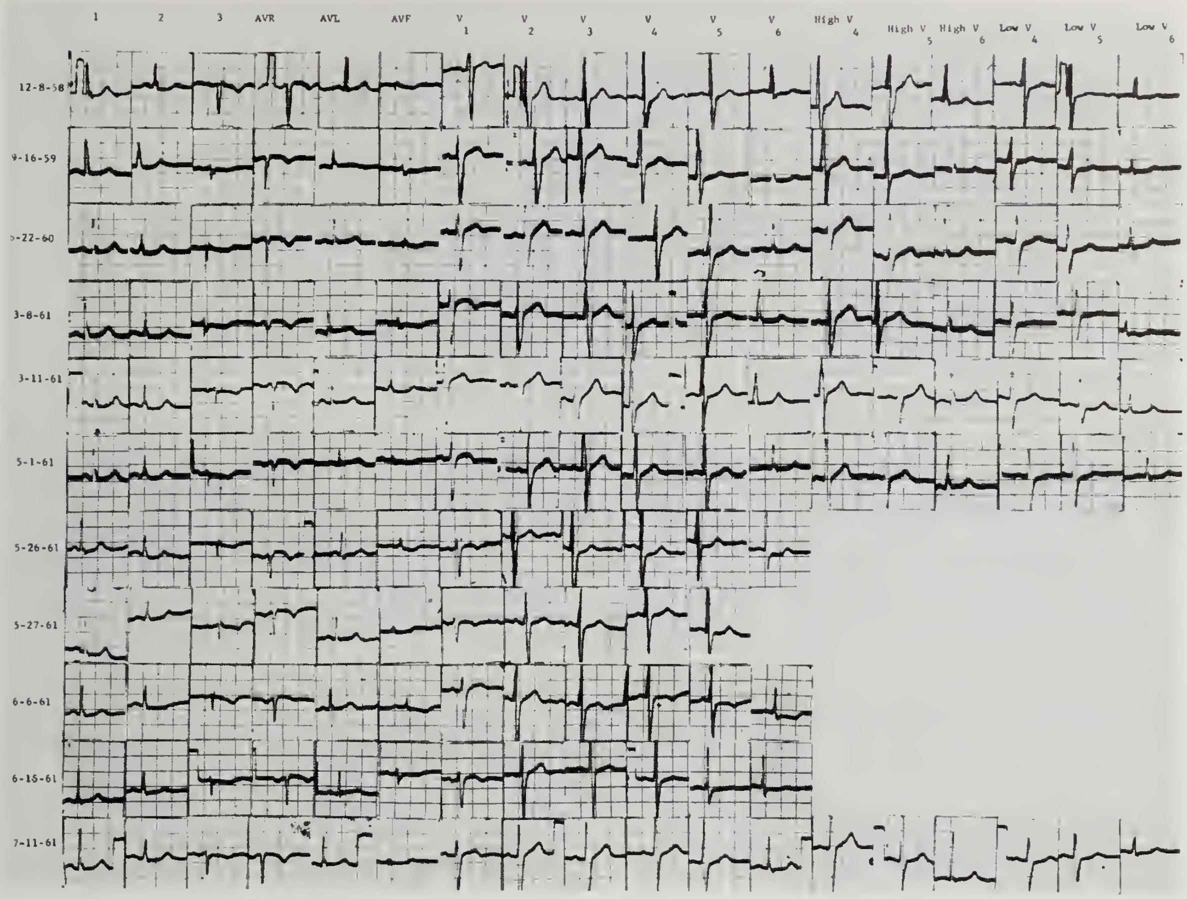

**FIG. 3. Case 3. ST- and T-wave deterioration and improvement indicating variations in myocardial health related to changes in blood pressure, physical activity and hemorrhage, although the patient had no chest pain to herald the ischemia of the myocardium.**

The accompanying photomicrograph (figure 2) illustrates the characteristics of the myocardial lesions of case 2.

**Case 3.** A 58-year-old man was examined on December 8, 1958 because of angina and hypertension (210/120 mm. Hg). Massive bleeding from an undetermined site in the gastrointestinal tract had occurred 3 years earlier. An ECG showed slight sagging of the ST-segment in leads 2, AVF, $V_6$, and in additional leads taken below $V_4$, $V_5$ and $V_6$. The T wave was low in lead 2, inverted in leads 3 and AVF, somewhat low in $V_5$ and $V_6$, and very low below $V_4$, $V_5$ and $V_6$ (figure 3).

With treatment by weight reduction, some rest, and the medications reserpine and hydralazine hydrochloride (Apresoline®) the blood pressure subsided promptly and maintained lower levels. On September 16, 1959 the blood pressure was 140/80 mm. Hg. The ECG on that date showed slight improvement of the ST-segments and T waves. The next ECG on June 22, 1960 showed still further improvement. The patient was having angina of only slight intensity and much less often than when first examined. He was having even less angina than a year earlier when examined on March 8, 1961, and the blood pressure was only 130/80 mm. Hg, but an ECG showed deterioration of the ST-segments and T waves. An ECG taken at home after 3 days of bed rest except for going to the bathroom and to the table for each meal showed striking improvement. On May 1, 1961 he reported sometimes having a little ache in his left arm but no chest pain when walking. He had walked for pleasure without pain in the arm or chest for half an hour before coming to the office to be examined. The ECG was again abnormal, and activities were partially restricted.

When going to the bathroom after awakening on the morning of May 26, 1961 he perspired so much that he went back to bed. A few minutes later, at 6:30 a.m., he again went to the bathroom and had a bowel movement with a black stool. He was admitted to a hospital within a few hours. At 11 a.m. the hematocrit was 39 per cent. An ECG at the same hour showed ST-segment deviation greater than in the immediate past. Because of this, blood was given to maintain the hematocrit at 42 to 45 per cent. The ST-segment deviation was corrected within 24 hours, and T waves increased in height. Radiographic and esophagoscopic studies later indicated that an area

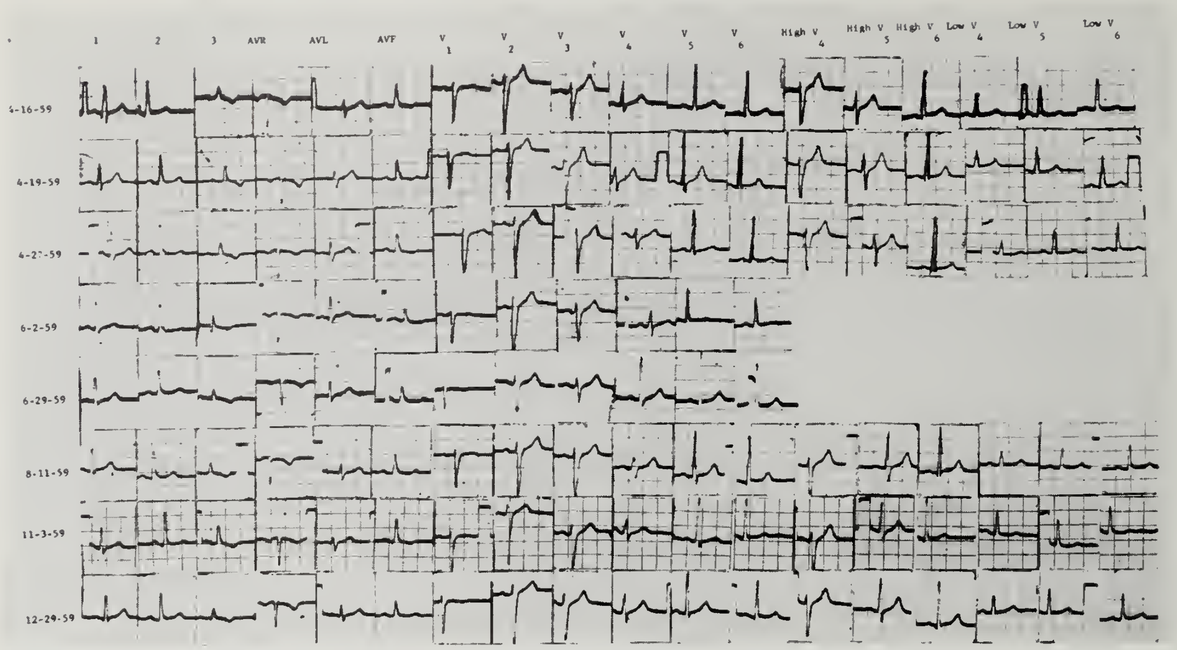

**FIG. 4. Case 4. Recovery (T-) wave changes in mid- and lower-cardiac apical region, which is distal portion of muscle supplied through a uniformly thickened left main and anterior descending coronary arterial system. Cycles correlated closely with activity and rest. Patient aged 34 with atypical chest pains.**

of esophagus irritated by a sliding hiatal hernia was the probable site of bleeding.

The patient was inadvertently allowed to walk a distance of 100 yards to a laboratory for an electrocardiogram on June 6, 1961. That ECG showed inversion of T waves in leads 2, 3, AVR, $V_4$, $V_5$ and $V_6$. The abnormality developed at this time was slow to disappear although the patient felt perfectly well. He did not have the slightest anginal pain for more than 4 months after the onset of the gastrointestinal bleeding. By July 11, 1961 he was taking daily far more exercise than on the day that his T waves were inverted after the unexpected walk in the hospital, yet the T waves were of fair height and good shape.

**Case 4.** A 34-year-old man was examined on April 16, 1959 because of constipation apparently due to a change in working hours. He had had some slight, vague aches in the cardiac apical region. Physical examination was entirely normal. An ECG showed a low (1.0 mm.) $T_2$, inverted $T_3$, small and diphasic T in AVF, and small T waves in $V_5$ and $V_6$, and below $V_4$, $V_5$ and $V_6$. After 3 days of bed rest at home there was an appreciable increase in the height of T in $V_5$ and $V_6$, and below $V_4$, $V_5$ and $V_6$. Slowly increased activities were then followed in 8 days by T-wave deterioration. For the next few weeks there were periods of complete bed rest alternating with cautious attempts at ambulation. The T waves during this period were most abnormal on June 2, 1959, and best on June 29. There were variations during that period, with remarkably exact correlation between complaints of slight pains (usually in the precordium, but also in the axilla, with none in the sternal region) and T-wave deterioration. During July, August and September it was possible to increase slowly the patient's activity with little or no deterioration of the T waves (figure 4). Return to employment was anticipated for October 1959. This plan was abandoned at the last week because of a return of chest pains and T-wave deterioration.

Pericardial exploration was offered to the patient and carried out on January 9, 1960 because of the possibility that pericarditis was causing both the symptoms and the electrocardiographic abnormalities. The pericardium and epicardium were without the slightest indication of inflammatory reaction. The surgeon stated that there was uniform thickening of the trunk of the left main coronary artery and that the left anterior descending branch felt wiry, with a uniform thickening. Other coronary arteries felt normal, and the heart muscle surface appeared normal. Contractions were uniform and good. A considerable portion of the pericardium was removed anteriorly with the hope that new vessels might grow into the epicardium from the lung or chest wall.

It is noteworthy that all of the ischemic myocardial degeneration electrocardiographically evident before exploration of the pericardium was in the inferior apical region. This is the distal portion of the heart muscle supplied through the left main coronary artery and its left anterior descending branch—vessels noted to be uniformly and greatly thickened. An obvious parallel is the diminishing viability and finally gangrene of the toes occurring at the distal portion of tissues nourished by blood flowing through sclerotic arteries of the leg.

**Case 5.** A 50-year-old man was examined on November 25, 1955 because of dull aches in his left shoulder coming with exertion. The ache at the top of the shoulder had first occurred 3 weeks earlier while he was playing tennis and recurred after walking a block a week before examination. An ECG showed small T waves in the limb leads and at the apex. Six days of rest at home with bathroom and meal privileges brought a striking electrocardiographic improvement. Slight deterioration occurred after the patient had been moderately active around home and greater deterioration after the patient's insistence upon returning to work (January 13, 1956). Six days' rest again brought improvement. Return to work was followed by slight further ischemic deterioration (February 24, 1956). The physical and mental strains entailed by an emergency operation upon the son for massive peritoneal bleeding after injury in a city 175 miles from home brought still further ischemic deterioration (March 21, 1956). Five weeks later (April 26) the recovery waves of the heart muscle were better. The patient had reduced his activities but had stayed at work during this period.

He was having no abnormal symptoms in December of 1957, and an ECG of December 13 was quite good. Two months later there were lowering and irregularity in the peak of T in several leads following the illness of the mother which entailed frequent hospital visits and less rest but no hard physical work. The patient was feeling well in August of 1960 although quite busy at his work. The ECG of August 10 was fairly good, but one on December 20 was more abnormal. Six days of rest at home with bathroom and meal privileges brought very slight improvement this time, in contrast to the obvious improvement by a similar period of rest 5 years earlier. There was a little further improvement by July, 1961. The patient had continued at work except for vacations of a few days but tried to keep himself from being pressed too hard. He developed abruptly increased frequency of chest pains on less and less exertion shortly after his arrival for business in Rio de Janeiro, Brazil at the end of June 1963.* Soon he had to confine himself to his hotel room. Great reduction of chest pains occurred after he was placed at absolute bed rest in a hospital. Anticoagulation was carried out. Death occurred suddenly while the patient was reading a newspaper shortly after breakfast on his eighth day in the hospital, a month after arrival in Brazil. An ECG 8 days before death showed 0.5 to 1.0 mm. depression of ST and barely upright T in leads $V_3$–$V_6$. Two and 4 days later the ST-segments were isoelectric, and T was barely inverted in $V_4$ and $V_5$, 1 mm. upright in $V_3$, and barely upright in $V_6$ (figure 5).

Autopsy disclosed coronary arteries with rigid walls, sinuous course and narrowed lumens. The disease was

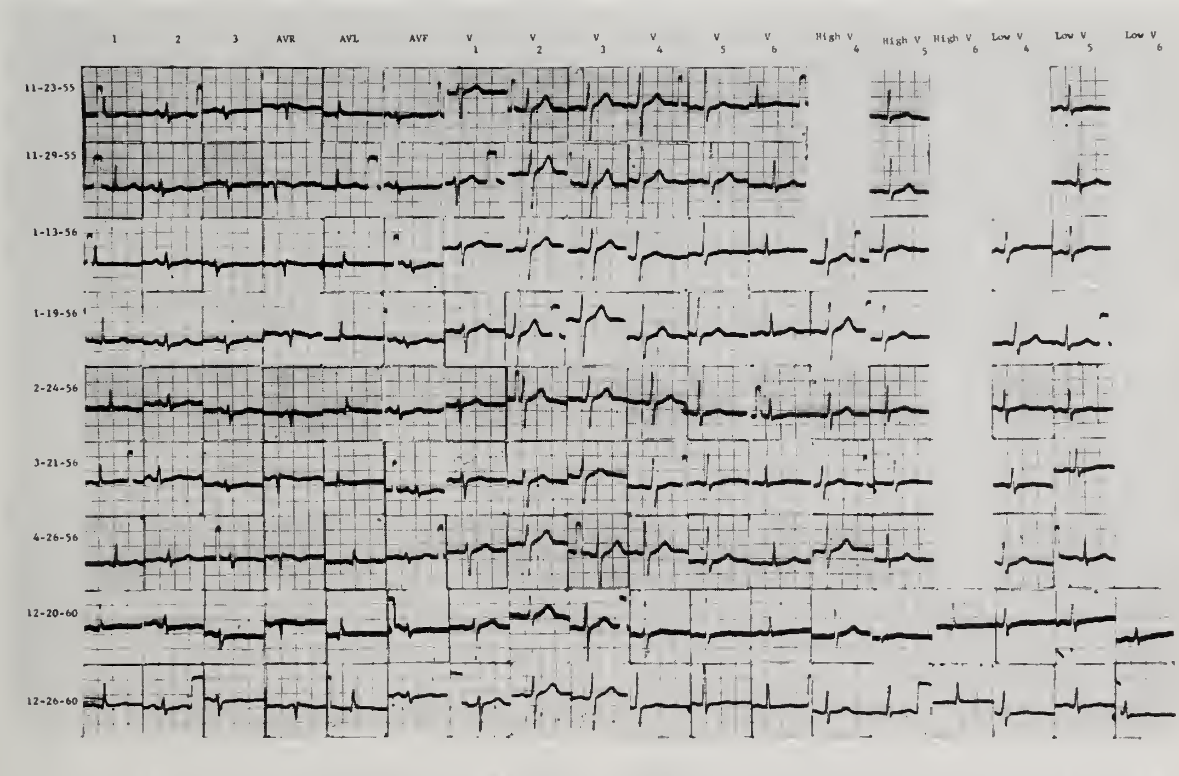

**FIG. 5. Case 5. Rare anginal pain in left shoulder. T-wave deterioration without pain during increased daily activities. Much less T-wave recovery with 5 days' rest 5 years after first demonstration.**

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* The author thanks Dr. Mario Anache of the Brazilian Cardiac Institute, Rio de Janeiro, for the clinical and pathologic reports and material and Mr. L. D. Hudson, Acting Chief of the Water Supply Division, U. S. Agency for International Development in Brazil, for his interest and assistance in obtaining, translating and forwarding reports and pathologic material.

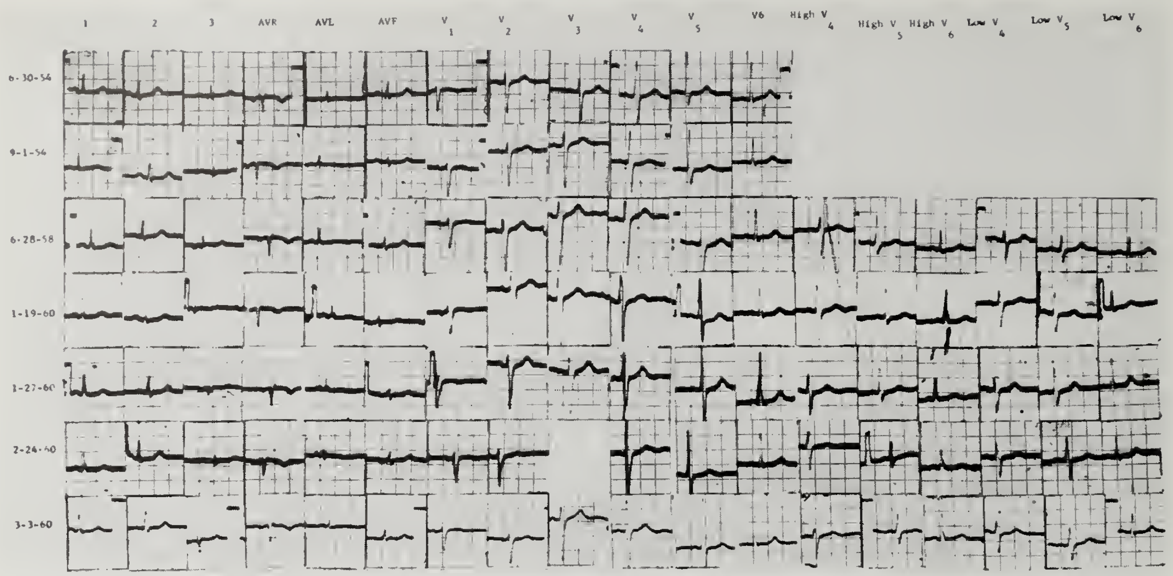

**FIG. 6. Case 6. T-wave deterioration and improvement correlated closely with activity and rest in asymptomatic patient. Regions of deterioration shown by 12 chest leads taken routinely to be in medial and upper lateral portions of heart in contrast to locations of ischemic myocardium in case 4.**

most severe in the left anterior descending branch. A red thrombus completely occluding the lumen overlay a partly calcified atheromatous thickening 8 mm. from the origin of this vessel. A single microscopic section through the thrombus showed some organization in a portion of the margin of the thrombus, indicating that that portion was at least several days old. The myocardial fibers appeared to have retained their integrity except for rare areas of pale-staining, disintegrating fibers, 2 together, and rare areas of vascularizing myocytolysis comparable in size and structure to the area in the mid-portion of the photomicrograph for case 2. There was slight perivascular fibrosis. A portion of the anterior wall of the left ventricle showed infiltration by a few polymorphonuclear leukocytes, suggesting that some of this tissue died within a very few hours before the patient suddenly succumbed.

**Case 6.** A school teacher had been followed from 1946. A chest roentgenogram then showed apparently healed lesions of pulmonary tuberculosis and a transverse cardiac diameter of 10.7 cm. The transverse cardiac diameter was 13.5 cm. on March 30, 1954, decreasing to 12 cm. a year later. Since then the heart measurement has ranged from 13 to 13.6 cm. Slight calcification of the aortic arch was noted in 1954. An ECG on September 1, 1954, one of a series taken because of the recent cardiac enlargement, showed lowering of T in $V_4$ not present 2 months earlier or 2 months later. The ECGs from 1946 to September 1, 1954 were otherwise normal.

The patient was asymptomatic throughout all these years and had no symptoms suggestive of ischemic heart disease when examined on January 19, 1960 at the age of 62. An ECG on that date showed angulation at the ST-T junction with lowering and notching of T in chest lead $V_4$. There was a hint of these same abnormalities in $V_3$, but observed alone the abnormalities in $V_3$ might easily be passed over.

The patient continued teaching but eliminated her frequent evening activities and obtained transportation by taxi between her home and school. The ECG abnormalities disappeared within 8 days. Greater abnormalities of T in $V_4$ and above $V_4$, $V_5$ and $V_6$ were noted on February 24, 1960. When told of these the patient then acknowledged that in the preceding 2 days (it was a vacation week) she had worked hard at washing windows and floors in her apartment but had felt absolutely no ill effects. Fairly complete bed rest at home brought slight T-wave improvement in 3 days and still further improvement in another five days (figure 6). The patient returned to teaching on March 12, 1960.

A similar episode of asymptomatic T-wave deterioration occurred in February 1962. A month of rest was required at this time to have the tracing return to normal.

## Discussion

Ischemic heart disease is injury of heart muscle cells due to an insufficient supply of well-oxygenated arterial blood. Necrosis and scarring are irreparable states of ischemic heart disease, as far as the involved myocardial cells are concerned. There are degrees of injury between the extremes of optimum health and death. A greater chance of survival and recovery of heart muscle—and of the patient—exists if there has been little or no ischemia prior to the imposition of the last increment of ischemia.

Work as a factor in producing chest pain, particularly if the work of walking were coupled with the work of furnishing extra blood to the gastrointestinal tract for digestion, was masterfully described 2 centuries ago by Heberden,[3] but he did not think the chest pain was due to heart strain. Work was present as a factor in producing ischemia in all of the 6 cases reported here. Chest pain was often not evident at the time of ischemic degeneration, and in case 1, even with the first of 2 gross myocardial infarctions. Physical activity was repeatedly related to ECG T-wave degeneration and rest to T-wave regeneration, while other factors of living remained constant in the last 4 case reports.

A recent study[4] of a community-wide group showed that "patients who sustain an initial acute myocardial infarction and have a history of angina pectoris are faced with a poorer immediate and long-term outlook for life plus greater disability than patients without such a history." Angina pectoris is a manifestation of the acute imposition of ischemia upon the myocardium.

For a portion of Boston, Massachusetts, and for other parts of the state, about three-fourths of the sudden deaths from ischemic myocardial disease investigated by a medical examiner have sclerotic, narrowed coronary arteries without fresh thrombotic occlusion.[5] The arterial state had been rather constant for some time prior to, and just before death. An additional factor, more work for the heart, brought about by some degree of physical activity or emotion, has in many instances thrust an additional increment of ischemia upon the myocardium, causing acute malfunction and perhaps ventricular fibrillation. In some cases the exertion and excitement of attending, eating, digesting and speaking at a banquet are followed quickly by sudden death.

Every suitable measure should be utilized to reduce the intensity of ischemia and thus the mass of heart muscle suffering from ischemia. If time enough is allowed and the patient is meanwhile kept from serious harm, collateral arterial vessels will enlarge or form to circuit blood at a distance from the obstruction,[6] to circuit blood immediately around the obstruction,[7] to canalize the obstruction,[7, 8] or to bring in blood from the ventricular chamber via a canalized mural thrombus.[9]

The value of electrocardiographic T waves in the recognition of ischemic myocardial disease has been emphasized.[10, 11] T waves are a record of electrical changes accompanying the metabolic recovery processes of the myocardial fibers as they prepare for the next contraction. Relating the T-wave changes to changing activities while other factors of living remain constant is a large and important step in removing T-wave abnormalities from the waste-basket category of "non-specific T-wave changes." The fact that young, vigorous athletes with presumed or arteriographically demonstrated normal coronary arteries may have T-wave abnormalities of brief duration after strenuous activity in no way negates the value of observation of T-wave abnormalities in individuals with diminished supply of arterial blood through narrowed coronary arteries. Abnormal T waves indicate altered metabolism of the myocardial cells. The myocardial cells of the individual with normal coronary arteries are well supplied with blood for quick restoration after brief physiologic alteration. The myocardial cells nourished through an impaired arterial supply will not recover so rapidly and will suffer physiologic impairment much more frequently and with less provocation. Even "minor" T-wave abnormalities are of considerable importance to the understanding and treatment of ischemic heart disease.

The use of extra chest leads[11] also tends to clinch a diagnosis of ischemic heart disease if they show that the abnormal T waves arise from a region of muscle supplied with blood by a particular branch or system of the coronary arteries. The extra 6 leads employed are at the junctures of the left mid-clavicular line with the third intercostal space and the lower costal margin, and at the anterior and mid-axillary lines directly lateral to these 2 points. In case 4 the T waves were most abnormal in the inferior apical region, supplied through the left main coronary artery and its anterior descending branch. In contrast, the T-wave changes in case 6 were most obvious in the mid-portion and upper left lateral border of the heart, a region supplied largely through the circumflex and marginal branches of the left coronary artery. I have studied numerous other patients with similar changing and localizing T-wave evidence of ischemic myocardium.

Discontinuous islands of temporarily ischemic but normal-appearing myocardium have been electrocardiographically demonstrated in human patients undergoing operations aimed at increasing blood supply to the heart muscle.[12] The same workers demonstrated in 1 such patient a large, confluent area of ischemic tissue which their diagram indicated to be in the distal portion of heart muscle supplied with blood passing through an obviously diseased coronary artery.

T-wave abnormalities such as those occurring in the inferior apical region of case 4 are often referred to as "minor," yet the basic cause for the T-wave abnormalities and the great thickening of the left main coronary artery and its anterior descending branch noted at exploratory operation are scarcely "minor" in possible consequence to the 34-year-old patient. A half century ago it was stated "that the reputation of the descending branch of the left coronary as the artery of sudden death is not undeserved." [13]

Rather than to label ECG changes as "minor" and thereby imply that the disease causing them is minor, it may be better to concentrate upon the demonstration of the response of the myocardium to rest and increments of common daily activities. It is wise to maintain myocardial nutrition at the optimum. Surgical anesthesia has made tremendous improvements and permitted far more extensive operations than formerly, since the realization has become widespread that oxygenation and blood supply to all tissues should be optimum and not just at a lowered level, which appears to suffice temporarily. Perhaps the 31 per cent death rate for first myocardial infarctions in employed personnel will be appreciably lessened if this principle is applied to the daily life of cardiac patients and if reduction of the final total intensity of ischemia and of the final total mass of ischemic muscle are brought about by recognizing and lessening any preëxisting degree of ischemic myocardial disease prior to the imposition of another increment of ischemia. Any increment of ischemia may be gradual or sudden in onset and may affect a small or large volume of muscle. The additional increment of ischemia may be precipitated by a diminution of arterial blood supply or by an increased need of the myocardium for oxygenated blood while the supply remains fixed and insufficient for the increased demands, or by a combination of these.

It has been demonstrated[10] that recovery (T-) wave abnormalities of even brief duration may be the ECG signal for the death of small masses of cardiac muscle. In case reports 3–6 above there were episodes of T-wave abnormalities when the patient was carrying out usual daily activities, followed by prompt T-wave recovery when the patient was put at nearly complete bed rest. It is probable that under such circumstances the portion of the myocardium injured by ischemia has indeed recovered as the degree of ischemia has been lessened by rest, so that rare or no myocardial cells have suffered to the point of death. If T-wave recovery is slow there is likelihood that a rare to thin scattering of myocardial cells has succumbed. Such an episode occurred with the walk taken on June 6, 1961 by the patient described in the case 3 report. A number of patients have been observed to go on to develop, after being put to rest, greater T-wave abnormalities than those noted which led them to be put at rest. Days or weeks may be required to bring about reversion of T-wave abnormalities.

The microscopic lesion of heart muscle suffering from ischemic disease furnishes a plausible explanation for such an ECG performance. In areas in which there is no massive necrosis, 1, 2 or 3 fibers of the myocardium may be obviously degenerated and in the process of replacement. This was described in case 2 and also noted in case 5. Larger, yet microscopic-sized groups of degenerating and replaced muscle cells are illustrated in the photomicrographs for cases 1 and 2. The cells undergoing necrosis and replacement are undoubtedly the source for catabolic products which act as a mild poison to the living muscle cells in intimate contact with the dead. It is probable that this explanation also applies to the well-known feature of massive infarcts. The T waves become progressively more abnormal for a period of days to weeks before starting to revert toward the normal. The living cells are poisoned for a considerable period of time by the adjacent necrotic tissue. Ischemic injury may be only one of the factors operating to cause increasing T-wave abnormalities under such circumstances. It is the living cells, not the dead, which create the cyclic electromotive forces recorded in the ECG. In even massive infarctions there is usually a sprinkling of apparently viable muscle cells throughout the infarcted mass. These living cells scattered through the large infarcted mass, in addition to those bordering the infarction, are affected by the breakdown products. The effect is similar to the injection of foreign substances into the myocardium.

(*Continued on page 356*)

# Radioactive Mercury Brain Scans in the Diagnosis of Intracranial Neoplasms*†

**PAUL C. BUCY, M.D., F.A.C.S.**

*Professor of Surgery, Northwestern University Medical School; Head of Section on Neurological Surgery, Chicago Wesley Memorial Hospital*

**IVAN S. CIRIC, M.D.**

*Resident in Neurological Surgery, Chicago Wesley Memorial Hospital*

WITHIN THE PAST FEW YEARS radioactive mercury brain scans have become the most valuable single diagnostic test for the demonstration and localization of intracranial tumors. In the autumn of 1961 Dr. E. A. Kahn and his associates at the University of Michigan introduced us to this diagnostic procedure. We began using it in May, 1962, and in the following 19 months (May, 1962 to January, 1964) 233 patients were examined with this technique on our service at the Chicago Wesley Memorial Hospital.‡ Of these patients 69 have been proved to have had a brain tumor. There were also 42 cerebrovascular disorders, 10 epidural and subdural hematomas, 5 arteriovenous malformations, 36 convulsive disorders of non-neoplastic etiology, and a number of other miscellaneous conditions.

Brain-scanning with radioactive isotopes is not new. It was begun in the late 1940's by Dr. George E. Moore at the University of Minnesota. Subsequently a number of investigators reported on the use of the methods which Dr. Moore initiated (Moore,[1] 1948; Moore,[2] 1953; Peyton, Moore, French and Chou,[3] 1952; Davis, Martin, Ashkenazy, Leroy and Fields,[4] 1950; Dunbar and Ray,[5] 1954, and others). The first reports were most enthusiastic, but with increased experience it became necessary to publish retractions of this enthusiasm (Davis and Craigmile,[6] 1954) and the method fell into disuse in most clinics.

In the cases reported upon here we have used the method as originally described by Brinkman, Wegst and Kahn.[7] Since then we have used mercury$^{197}$ (Sodee[8]) instead of mercury$^{203}$ (Blau and Bender[9, 10]), and there have been some modifications in the scanners which we are using. These, however, are changes designed to increase the safety of using radioactive materials and to improve the accuracy of recording. These changes have not influenced the overall results of this diagnostic procedure nor have they altered our general opinion of it. There are good reasons to hope that in the near future further changes, particularly in the recording equipment, will be made which will greatly shorten the time required for the examination of the individual patient. At present, our equipment requires approximately 30 minutes for each view. Thus, if we make 2 lateral, an anterior and a posterior scan, 2 hours are required for the examination. In every case at least 2 views are required, and in many 3 or 4 are necessary or advisable.

Radioactive mercury brain scans are useful in the diagnosis of various types of brain tumor, but they are not equally useful in all types. In our experience the highest percentage of positive results has been obtained with glioblastomas and with meningiomas. Even here the results are not 100 per cent positive. We have had 1 case of cerebral glioblastoma in which the radioactive mercury brain scan was never absolutely positive and localizing, although ventriculography finally demonstrated the presence and location of the tumor which was confirmed at operation. We had another case of cerebral glioblastoma in which early in the course of the tumor the brain scan was not diagnostic but a month later was of the greatest diagnostic value, especially as neither angiography nor pneumoencephalography provided accurately localizing information. However, in 21 of 24 scans in cases of glioblastoma the method was positive and accurately localizing. Radioactive mercury scanning proved of greatest help in a number of cases of glioblastoma in which clinical examination, pneumoencephalography, cerebral angiography and electroencephalography did not provide accurate localization.

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* Presented at a special Scientific Symposium, March 13, 1964, which was held in honor of Dr. James W. Watts' Sixtieth Birthday at the George Washington University Hospital, Washington, D. C.

† This study was aided by training grant No. NB-5408-01 from the National Institute of Neurological Diseases and Blindness, National Institutes of Health, Public Health Service, United States Department of Health, Education, and Welfare.

‡ Additional patients from other services and a few from other hospitals were also examined at the Chicago Wesley Memorial Hospital during this period, but they have not been included in this report.

Our results with meningiomas were even more gratifying. Scanning was positive and localizing in all of 13 cases. Furthermore, in general, meningiomas showed the most intense radioactive "pickup." In 1 case of multiple meningiomas the radioactive scan revealed the multiplicity of the lesions. There were also several cases in which the radioactive scans not only revealed the tumor to much better advantage than other methods, such as angiography, but were so much more accurate in their localizing significance as to greatly aid the surgeon in planning his operative attack. This was particularly true with a meningioma of the occipital pole which was not demonstrated by angiography (figure 1) and with another meningioma lying along the falx in the parietal region. In the latter case the angiograms indicated the presence of a tumor in the parietal area but did not disclose that the tumor was a meningioma, nor indicate that it lay so far medially. In all we have had 3 cases in which only the radioactive mercury brain scan disclosed the presence and location of the meningioma, while the angiogram was either negative or failed to localize the lesion.

Radioactive brain scans have given positive results in only 2 of 4 cases of cerebral astrocytoma. In 1 of these there was a very large astrocytoma in the right temporal region which was clearly demonstrated by cerebral angiography while the brain scan was silent (figure 2). A year and a half later the patient developed a few temporal-lobe-type seizures and was reëxamined. On this occasion the scan was definitely positive although microscopically the tumor had not increased in malignancy and had grown very little. Other gliomas which we have examined with this technique have included ependymoma of the fourth ventricle, glioma of the optic nerves and chiasm, and glioma of the brain stem. In all cases the scans were positive and localizing.

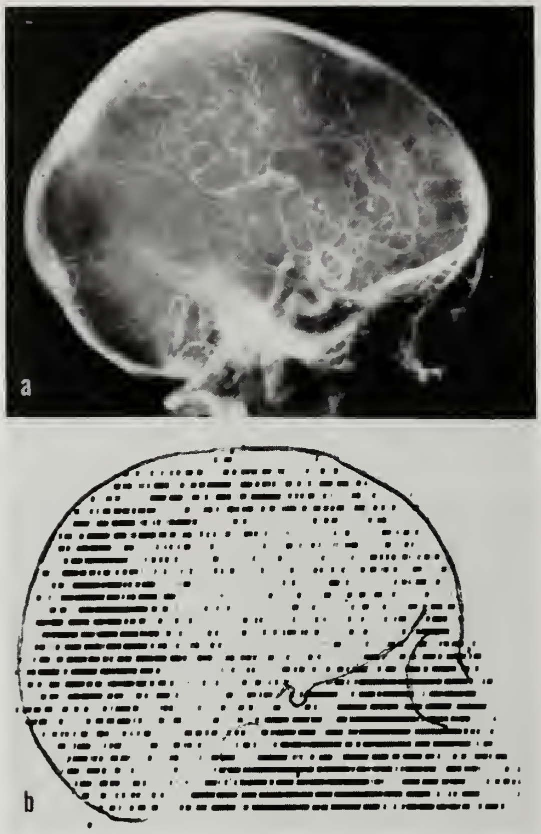

**FIG. 1. Meningioma of right occipital lobe: (a) Right brachial cerebral angiogram did not indicate the presence of the tumor in any one of 10 serial films. Arterial phase of angiogram shown here. (b) Radioactive mercury$^{203}$ brain scan, right lateral. Intense "pickup" of radioactive material in occipital region clearly seen.**

Sarcomas of the meninges and lymphosarcomas have given positive results, but in 1 case of meningeal sarcoma the anterior view showed an increased pickup on 1 side but the lateral view was not of localizing value. The case of lymphosarcoma was particularly instructive. This 63-year-old woman had 2 lesions, a lymphosarcoma in the right cerebellar hemisphere and another in the pons. She was first seen on another service. The brain scan which they had made was negative. Their study had included a right and left lateral and an anterior scan. No posterior scan had been made. When we saw this woman 3 months later we had the scan repeated and included a posterior scan. Both the posterior scan and the right lateral disclosed the presence and location of the tumor. There are 2 possibilities here. Perhaps at the time of the first scan the tumor was not large enough to be shown by this technique. But it is also possible that a posterior scan at that time would have shown the tumor just as it did in the later study.

This last case brings up another point which needs emphasis. Tumors in the posterior fossa and at the base of the skull are more difficult to demonstrate with radioactive mercury scanning than are those in the supratentorial fossa away from the base. This is due to the fact that the muscles of mastication and of the neck and the mucosa of the nose and paranasal sinuses tend to pick up the radioactive mercury as intensively as do intracranial tumors (see figures 1-b and 2-b).

Fifteen patients with metastatic intracranial tumors were examined. In 5 cases the tumors were in the posterior fossa. The scans were positive and of localizing value in 3 of these. In 10 cases in which the metastatic tumor was in the cerebral hemisphere the scans were diagnostic in 9. Radioactive scanning may be of great value in disclosing the unexpected presence of multiple tumors. However, the surgeon should not err in concluding that because the tumors are multiple they are necessarily malignant. As we have noted, multiple benign meningiomas may be similarly demonstrated.

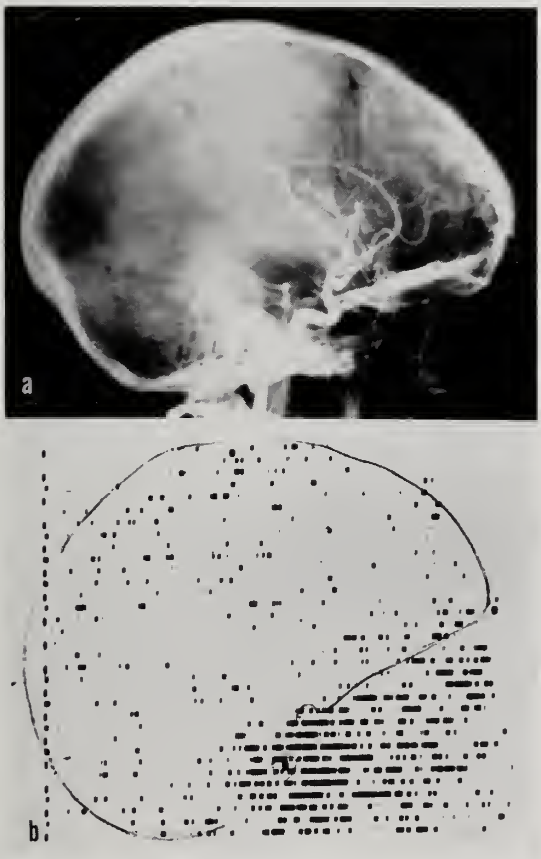

**FIG. 2. Astrocytoma of right temporal lobe: (a) Right brachial cerebral angiogram. Carotid siphon straightened and middle cerebral artery greatly elevated. Entire temporal lobe presents an avascular appearance. (b) Right lateral radioactive mercury$^{203}$ brain scan entirely negative. No evidence of astrocytoma which was present.**

The radioactive mercury scan was definitely positive with 1 acoustic neurinoma, was significant in the lateral scan but not in the posterior in a second case, and was not diagnostic in a third. Again we must emphasize the confusion produced by the increased pickup from the neck muscles.

In 2 cases of epidermoid cyst of the brain the radioactive scans were negative. It is to be presumed that these very slowly growing, benign, avascular growths which contain cystic cavities filled with large masses of dead desquamated material do not pick up the radioactive mercury with sufficient intensity to demonstrate their presence. On the other hand, intracranial granulomas may be very clearly shown by this technique. Of 3 cases only 1 was negative. This was a calcified granuloma in the frontal lobe. In the case of a tuberculoma of the sphenoid ridge and orbital fissure the radioactive scan was strikingly diagnostic. Angiography and pneumoencephalography had both failed completely to demonstrate this lesion. The clinical manifestations were typical of a progressive lesion of the orbital fissure.

In addition to the great value of radioactive mercury brain scans in the diagnosis and localization of intracranial tumors and granulomas this diagnostic technique has other advantages. First, it is safe. Various authorities on the use of radioactive materials have assured us that the technique as used here is without risk to the patient, the physician, or the technician who carries out the scan. Furthermore, the method is not associated with any complications other than those which might attend any venepuncture. The risks of arterial occlusion, hemorrhage, cerebral vascular spasm and edema, convulsions, etc., which may be associated with cerebral arteriography, though uncommon, are not present in any degree with radioactive scanning. Likewise, the risks of various complications associated with pneumoencephalography and ventriculography, which are rather considerable, are not at all present here. Second, radioactive scanning is associated with no more discomfort to the patient than that to be expected from a venepuncture. The discomfort is far less than that associated with either cerebral angiography or with air studies. Third, compared with these other diagnostic procedures radioactive mercury brain-scanning is relatively inexpensive.

The advantages of radioactive mercury brain-scanning by their very truth present a not inconsiderable disadvantage. Because the method is cheap, simple, and free from great risk or discomfort, and because it can be done by a well-trained laboratory technician with little professional supervision there is the great risk that many physicians untrained in the neurologic disciplines will resort to this technique as a screening device to determine whether their patients are or are not suffering from intracranial space-occupying lesions. This technique cannot be used safely for this purpose. The well-trained neurologist and neurologic surgeon are still the best "machine" for the diagnosis of a brain tumor. In fact, a physician with adequate neurologic training and experience is absolutely essential for that purpose. Radioactive mercury brain-scanning is of great value as one of the adjuncts in the study of a patient suspected of harboring a brain tumor. It is not a substitute for a good clinical history, a careful neurologic examination, and sound clinical judgment. A positive scan is of great significance in indicating the presence of an intracranial lesion. A negative scan is of no diagnostic value whatsoever.

It is also noteworthy that those tumors which radioactive mercury scanning is more likely not to disclose are those which are still small and those which are benign. If, therefore, one relies upon radioactive scanning to sort out those patients which are suffering from brain tumor he is likely to overlook just that group which is most likely to benefit from prompt and energetic surgical treatment.

Although, as has been indicated, certain tumors give positive results in a higher percentage of cases than do others, and although certain tumors, notably the meningiomas, commonly display a more intense pickup of the radioactive mercury than do others, it is not possible with any degree of accuracy to make a histologic diagnosis as to the type of tumor present or even to decide that the mass is a neoplasm on the basis of the radioactive scan alone.

## Summary

Our experiences with the use of radioactive mercury brain-scanning in the diagnosis of a series of intracranial tumors and granulomas have been presented. It is our belief that this is the most valuable single test available today for demonstrating and localizing an intracranial space-occupying lesion. It has proved to be of value in a high percentage of cases (83.1 per cent). Not all tumors are demonstrable by this method. Glioblastomas and meningiomas gave diagnostic scans in the highest percentage of cases. Astrocytomas may not be demonstrated by this method. Epidermoids have not been shown with this technique, in our experience. Tumors in the posterior fossa and at the base of the skull may be obscured by the radioactivity displayed by the muscles and the nasal mucosa at the base of the skull.

The method is safe, free from discomfort to the patient, simple to perform, and relatively inexpensive. It must not be used by the non-neurologically oriented physician to screen out those patients suffering from brain tumor. Unfortunately, the tumors which this technique does not disclose are often the early tumors and those most benign, and thus those most amenable to prompt surgical intervention.

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# Asymptomatic Rupture of Aortic Sinus (of Valsalva) into the Right Atrium

## Report of a Case

**DONALD W. DATLOW, M.D.**

*Fellow, George Washington University Division of Medicine, District of Columbia General Hospital, Washington*

**RASHID A. MASSUMI, M.D.**

*Chief, Cardiopulmonary Laboratory, District of Columbia General Hospital; Associate Professor of Medicine, George Washington University School of Medicine*

Congenital aneurysm of an aortic sinus of Valsalva, with or without rupture into a cardiac chamber, is rare. Earlier reports since the first description in 1840[1] were based on postmortem examinations.[2, 3] Recently, however, it has become possible to recognize the condition antemortem, thanks to the modern diagnostic techniques of cardiac catheterization and angiography.[4-32] The availability of surgical correction has made a correct anatomic diagnosis and identification of the chambers involved of paramount importance. This report describes the manner in which diagnosis of rupture of the sinus of Valsalva into the right atrium was established in an asymptomatic young woman in whom surgical correction was made possible when she developed heart failure 1 year later.

### Report of Case

A 24-year-old Negro woman was noted to have a heart murmur when she was admitted to the Obstetrics Department of the District of Columbia General Hospital for delivery of her second child. Her past history was entirely negative with reference to the cardiovascular system. She had never consulted a physician and denied symptoms suggestive of rheumatic fever, chest trauma, endocarditis, syphilis, or gonorrhea. The previous pregnancy had been uncomplicated save for the question of mild dyspnea. The family, environmental, and other anamnestic investigations were noncontributory. On examination 10 days postpartum she appeared well-developed and in no distress, with normal vital signs and a blood pressure of 120/70. Cyanosis and clubbing were absent. Peripheral arterial pulses were brisk with a slightly accelerated rate of rise. The jugular veins displayed normal "a" and "v" waves and appeared to have normal pressure. The apex impulse was left-ventricular in type and was displaced leftward to the anterior axillary line. The impulse was sustained and diffuse, suggesting left ventricular hypertrophy. The right ventricular lift was not remarkable; however, pulmonary valve closure could be felt. There was a loud, widely radiating, superficial, continuous murmur with maximal intensity in the fourth left intercostal space parasternally. The systolic component occupied the entire systole and spilled into early diastole. The diastolic component was of high frequency and maximal in the fourth left parasternal area but was barely audible at the apex. The murmur enveloped the second sound without evident loss of intensity before it. This feature was particularly pronounced in the fourth left intercostal space. There was a thrill corresponding to this murmur. Pressure on the mammary veins failed to influence the murmur. The second sound could be made out with some difficulty and was normally split in so far as respiratory variations were concerned. There were no edema, hepatomegaly, or characteristic findings of tricuspid regurgitation. Chest roentgenograms, electrocardiogram, and phonocardiograms are shown in figures 1 and 2.

Because of the low location of the murmur patent ductus arteriosus was not favored, even though the configuration and timing were consistent with this diagnosis. The diagnostic possibilities considered included aorticopulmonary window, coronary arteriovenous fistula, ventricular septal defect combined with aortic regurgitation, pulmonary stenosis with pulmonary regurgitation, and ruptured sinus of Valsalva into the right atrium or right ventricle.

A preliminary systemic dye dilution curve was obtained by injecting Cardio-Green® dye into an arm vein and sampling from the brachial artery. This was consistent with a large left to right shunt (figure 3). Cardiac catheterization was then decided upon for more exact characterization of the shunt.

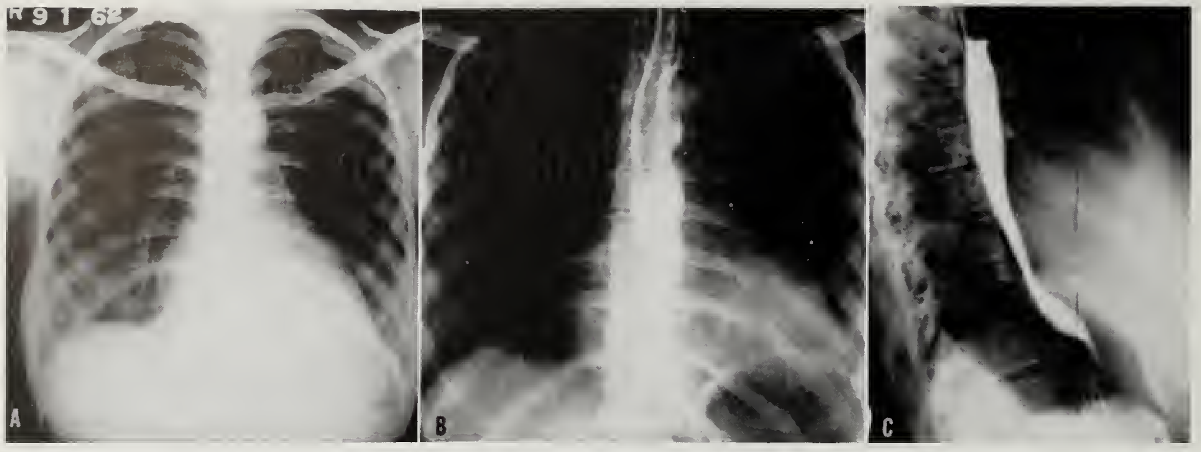

**FIG. 1. A.** Evidence of moderate cardiomegaly and considerable right atrial dilatation. Pulmonary vascularity as well as size of main pulmonary artery are not remarkably increased. **B** and **C.** Esophagograms in postero-anterior and lateral views exhibiting no significant chamber enlargements.

Initially 1 catheter was fixed in place in the right subclavian vein for injection of Cardio-Green, and a second sampling catheter was advanced further until its tip lay in the pulmonary artery. Sequential injections of Cardio-Green were made into the subclavian vein, and sampling was made after each individual injection, first from the pulmonary artery (PA), then the right ventricle (RV), right atrium (RA), and superior vena cava (SVC) (figure 4). The curve obtained when sampling was made from the superior vena cava only a short distance downstream from the point of injection exhibited 1 primary sharp curve with an appearance time of 1.0 second. The next rise of the curve occurred 15.5 seconds later, suggesting reappearance of the injected bollus of Cardio-Green after a complete circulation through the lungs, the left heart, and the peripheral vascular bed. The other 3 curves, wherein sampling was made from the right atrium, right ventricle and pulmonary artery respectively, all showed a primary curve comparable to the first curve but in addition exhibited a secondary curve interrupting the downslope of the curve. This type of curve was characteristic of early reappearance of the dye in these chambers, hence left-to-right shunt at the level of the right atrium. The curves, however, could not determine the origin of the shunting blood. At this time a radiopaque polyethylene catheter was advanced transfemorally into the aorta and the tip placed above the aortic valve. With sampling made from the right atrium, Cardio-Green was injected into the root of the aorta just above the valve. The curve showed a clear-cut early hump proving the existence of an aortic-right atrial shunt (figure 5). On 1 occasion the catheter entered the right atrium from the aorta, and this was seen under fluoroscopy and pressure-monitoring.

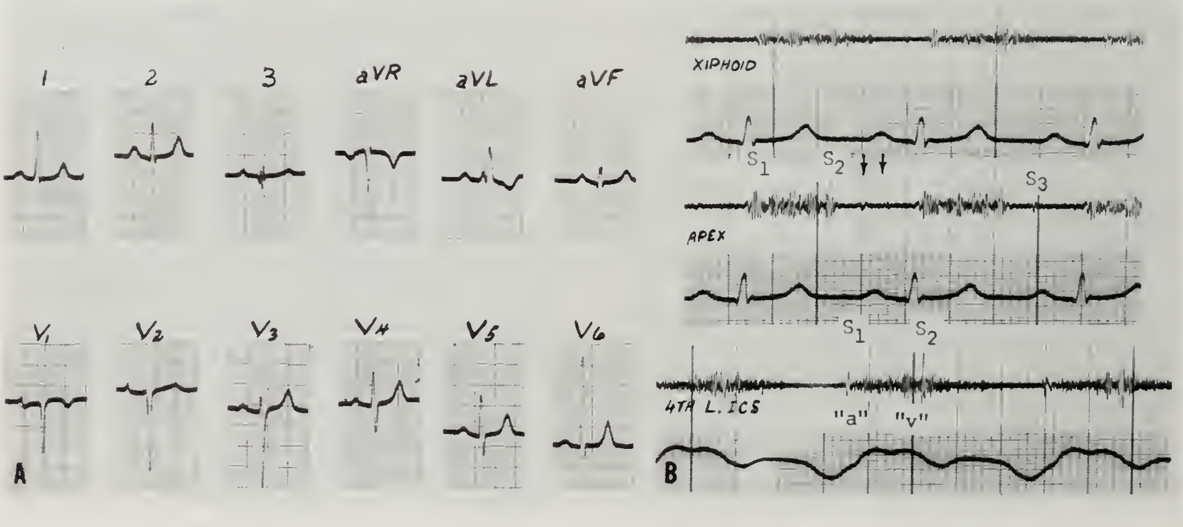

**FIG. 2. A.** Large, peaked P waves, PR-interval prolongation, and small R waves in $V_{1-2}$, all consistent with right atrial enlargement and dilatation. **B.** Logarithmic phonocardiograms recorded at designated positions with jugular venous pulse tracing on bottom strip. Note extension of murmur into diastole and its maximal intensity at the fourth left interspace. Also note diastolic filling sound marked by $S_3$ followed by a diastolic flow rumble at apex (arrows).

Blood samples from various chambers revealed 2 oxygen-saturation step-ups, 1 of 10.4 per cent from the superior vena cava to mid-right atrium, and the other of 16.5 per cent from the mid-right atrium to the right ventricle. The latter step-up was thought to represent streaming of shunted blood directly into the right ventricle.

In order further to study the anatomy of the communication already proven to exist between the aorta and right atrium, the aortic catheter was utilized for thoracic aortography (figure 6). Following injection of 50 c.c. of 50 per cent sodium diatrizoate under a pressure of 425 lbs./in.$^2$, the contrast medium was seen to enter the right atrium from the aorta. The sinus tract was not adequately visualized. The shunted blood caused early opacification of the RV and PA, and the degree of opacification suggested a sizable shunt. Calculation based on oxygen determinations showed the pulmonary-systemic flow ratio to be 2.4 to 1.0. Our interpretation was that of an aortic-right atrial shunt due to ruptured sinus of Valsalva into the right atrium.

In early August of 1963 the patient underwent open-heart surgery at the Hospital of the Medical College of Virginia at Richmond and was found to have a direct communication between the noncoronary sinus and the right atrium. This was successfully closed, and the patient made a good recovery. The murmur vanished, and the patient soon felt considerably improved.

## Discussion

This case represents an example of an asymptomatic rupture of the noncoronary sinus of Valsalva into the right atrium. It demonstrates that with the proper selection of special diagnostic techniques an exact anatomic diagnosis should be possible in similar cases. Noteworthy is the absence of significant aneurysmal dilatation.

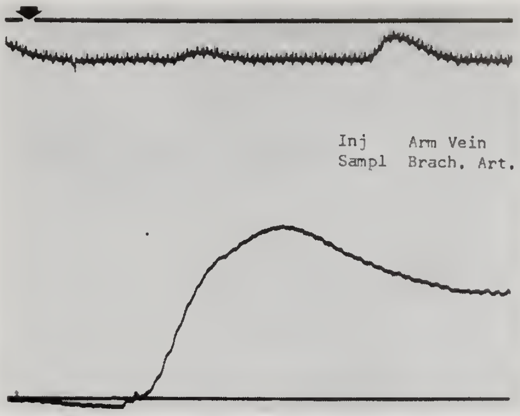

FIG. 3. Systemic dye dilution curve exhibiting a gradual downslope consistent with a large left-to-right shunt. Injection is made into an arm vein (marked by downward arrow) and sampling made from brachial artery.

The rarity of congenital aneurysm of the sinuses of Valsalva is evident from the work of Fontana and Edwards,[33] who were able to find only 4 examples of this condition in their collection of 357 cases of major congenital cardiac malformations representing the pathologic material of the Mayo Clinic up to July 1, 1954. Jones and Langley[2] collected 25 cases of congenital aortic sinus aneurysms irrespective of rupture and confirmed only by postmortem examination. They noted that it was difficult in life to diagnose the aneurysm which had developed into an aortico-cardiac fistula, and vir-

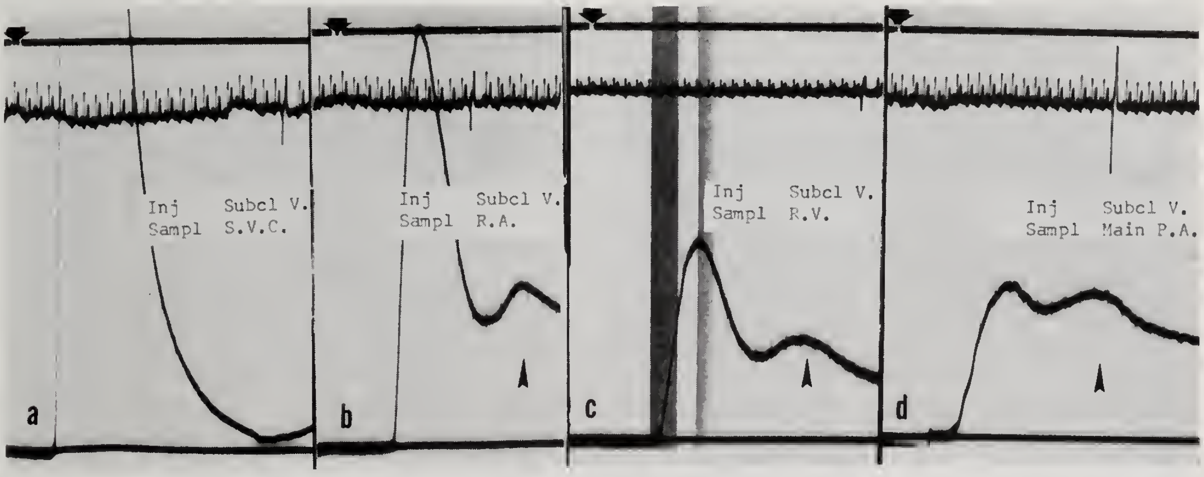

FIG. 4. Selective venovenous dye dilution curves with injection made into subclavian vein in each case (marked by downward arrow) and sampling made from SVC (a), RA (b), RV (c), and PA (d). Note that curve of superior vena cava displays a single primary curve with no suggestion of a recirculation curve on downslope; the latter is clearly demonstrated in remaining 3 curves (upward arrows), thus identifying right atrium as recipient chamber. Origin of shunt cannot, however, be inferred from these curves.

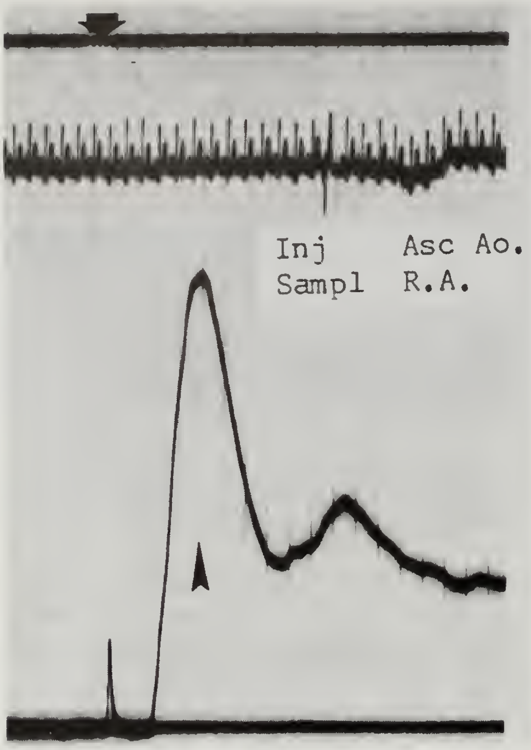

**FIG. 5. Selective dye dilution curve with injection made above aortic valve (marked by downward arrow) and sampling made from the RA, showing an early, sharp curve (upward arrow) appearing 0.5 sec. after injection and documenting presence of an aortic-right atrial shunt.**

tually impossible to suspect the existence of unruptured aneurysm. Oram and East[3] listed 23 cases of aortic sinus aneurysm, including 2 of their own, with rupture into the right side of the heart; rupture was confirmed by autopsy in all but 1 case.

Pathogenesis of defects of the sinuses of Valsalva involves the interaction of congenital or acquired weakness of the elastic tissue on the one hand and mechanical trauma of pulsations on the other.[7] The histopathology in the congenital variety is a defect in the elastic tissue at the supravalvular portion of the aortic wall.[34, 35] The presence of aneurysmal dilatation is not a prerequisite for fistula formation. Three of the cases reported by Kieffer and Winchell[15] and the present case are examples of fistulous communication wtihout actual preëxisting aneurysm. Conversely, aneurysm may be present without rupture.[27, 28, 29] Consequently, the wisdom of using the word "aneurysm" to imply all defects of the Valsalva sinuses irrespective of dilatation may be questioned. Perhaps the use of more specific terms such as fistula and aneurysm with and without rupture can be justified for clarity. The propensity for aneurysmal dilatation and for rupture is not shared equally by all the 3 sinuses. In their comprehensive review of 78 cases of aneurysm made up of 71 cases from the literature and 7 of their own, Kieffer and Winchell[15] noted that aneurysms were confined almost exclusively to the right coronary and the noncoronary sinuses, the former being involved much more commonly than the latter. The right coronary sinus defect usually ruptures into the RV and the noncoronary sinus into the RA. This is readily explained on the basis of anatomic juxtaposition of the 2 sinuses with these chambers.

Rupture of a sinus defect into the left-heart chambers is rare. Kay et al[14] believed, on the basis of their extensive search of the literature, that their case of rupture into the left atrium was the only documented case on record. Other rare areas where rupture may take place include the pulmonary artery and the pericardial sac.

The hemodynamic consequences of rupture of a Valsalva sinus into either RA or RV are 2-fold, consisting of (1) an aortic runoff tantamount to an acute aortic regurgitation, and (2) an acute left-to-right shunt with overloading of the RV and pulmonary capillaries as well as the LA and LV. The left ventricle is therefore placed in serious disadvantage on 2 accounts, one being the need for increasing its stroke volume because of the runoff, and the other, the diastolic overload caused by the left-to-right shunt. The resulting situation has indeed been serious in the majority of cases. A review of the reported cases shows that the presenting symptoms after rupture have been typified by acute dyspnea, frequent substernal or upper abdominal pain, and often a fulminating course leading to death.[2, 3, 5, 6, 8, 12, 30, 31] Dyspnea unassociated with pain may be the only presenting symptom.[5] When pain is the first symptom it may be followed by left ventricular failure or, less commonly, by a period of relative freedom from symptoms, lasting from a few months to years[15] before symptoms of failure set in. The extreme situations are those of sudden death from rupture into the pericardial sac[5] to survival as long as 17 years.[2] Undoubtedly the most common pattern is that of a relentless failure terminating in death. In the review of 37 cases by Sawyers et al[5] heart failure and bacterial endocarditis were the most frequent causes of death, in that order. The studies of Davidsen et al[9] on the importance of the size of communication in determining the survival time showed death within

2 months with ruptures 8 to 12 mm. in diameter and death after the first year with ruptures of 5 to 6 mm., at least in cases of aortic-right atrial shunt. Shunt size, however, is not the only determining factor. The association of pulmonary infundibular or valvular stenosis, for example, would protect the lungs from the large flow as in Bronk's case.[7] Our patient was completely asymptomatic in spite of a pulmonary systemic flow ratio of 2.4/1.

Physical findings vary depending on the size of the shunt and the chamber receiving it. In general one observes signs of aortic runoff, namely, a bounding pulse associated with wide pulse pressure, left ventricular hypertrophy, and left ventricular gallop when failure is present, and also signs of left-to-right shunt consisting of prominent RV impulse, loud pulmonary closure sound, and occasional prominence of the jugular venous pulse when the recipient chamber is the right atrium. The murmur is usually continuous because the pressure gradient responsible for the shunt persists throughout the cardiac cycle. The superficial, loud and rough quality of the murmur is universally agreed upon, but the exact timing and configuration have been variously described. Neill and Mounsey's description[24] of a superficial, loud and continuous murmur, greatest in midsystole with waning around the second sound and waxing again in mid-diastole, seems to be the most acceptable description. The site of maximal intensity is usually in the third or fourth intercostal space to the left or right of the sternum, and the association of a coarse thrill is commonly appreciated.[4, 5, 15, 21]

Differentiation between this lesion and patent ductus arteriosus (PDA) is usually easy because the latter produces a murmur maximal in the second left interspace parasternally and beneath the left clavicle. Moreover, the murmur is characteristically machinery in type, peaks around the second sound and often envelops it. The murmur in the present case had all the characteristics of PDA murmur but had its maximal intensity in the fourth instead of the second space. This differentiation is of great practical significance as can be inferred from the number of thoracotomies performed in cases of cardioaortic fistulas with the erroneous diagnosis of PDA.[15, 17, 24, 26] Differentiation from other lesions causing continuous murmur is a great deal more difficult if not impossible. These lesions include coronary arteriovenous fistula, anomalous left coronary from the pulmonary artery, ventricular septal defect associated with aortic regurgitation, and finally aorticopulmonary window. Special studies are as a rule required for a definitive diagnosis.

Simple right-heart catheterization cannot furnish the exact information necessary for differentiation between these closely related lesions having in common a left-to-right shunt and a continuous murmur. Right-heart catheterization cannot identify the supply chamber. The recipient chamber is identified on the basis of an oxygen step-up. However, this method is frequently fraught with uncertainties, because the association of minimal to mild pulmonary or tricuspid valve insufficiency will enable the shunted arterialized blood to regurgitate, reach the upstream chamber, and cause the latter to be identified as the recipient chamber. On the other hand, sampling of blood in duplicates from

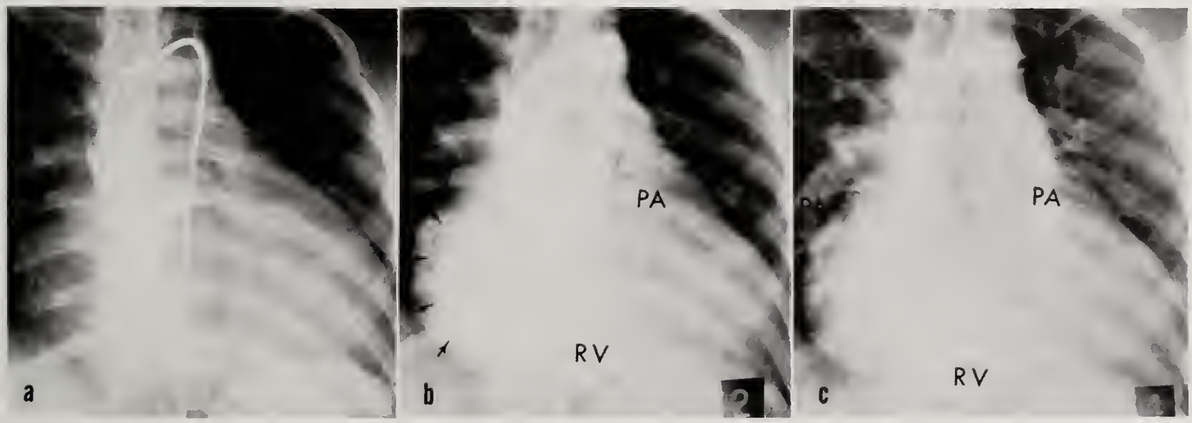

FIG. 6. Retrograde aortograms taken immediately (a), 1 second (b) and 2 seconds (c) after injection of contrast medium in ascending aorta above the valve; "a" shows beginning of aortic opacification; "b" outlines opacified right atrium (arrows), right ventricle (RV), and pulmonary arteries (PA); "c" exhibits further opacification of pulmonary arterial branches.

several loci in 3 or 4 chambers takes a long time and vitiates the usefulness of a test which presupposes simultaneous collections. In addition to the uncertainties resulting from the use of the oxygen method the association of aortic insufficiency due to prolapse of the cusp and ventricular septal defect produces a complex situation calling for the most sophisticated hemodynamic, angiographic, and dye dilution techniques.

Angiocardiography with injection into a peripheral vein or right-sided chambers may suggest a left-to-right shunt by demonstrating recirculation of opacified blood, but it seldom is of sufficient concentration and density to localize the shunt. Such angiograms may demonstrate the aneurysmal dilatation of the aortic sinuses. In our view retrograde aortography with injection at a short distance above the valve is a necessity when the possibility of ruptured sinus of Valsalva has been considered. This technique not only reveals the site of rupture[5, 9, 19, 22, 30, 36] but also uncovers aneurysms without rupture.[11, 18] Our wide experience with over 300 retrograde percutaneous aortic catheterizations has led us to consider this technique simple, safe, and extremely satisfactory.

Systemic dye dilution curves with injection into a peripheral vein and sampling from a peripheral artery are capable only of demonstrating the presence of a left-to-right shunt without providing any specific information regarding the site of origin or termination.

With the ingenious method of venovenous dye dilution curves devised by Braunwald et al[37] in which both injection and sampling are made in the systemic venous system, identification of the recipient chamber can be achieved with accuracy as was done in the present case. However, this technique again fails to identify the chamber of origin. On the other hand, injection of the Cardio-Green in the aorta just above the valve with successive samplings from right heart chambers as suggested by Semler and Brandenburg[26] is undoubtedly the most direct method, giving information about both supply and recipient chambers. Swan and Wood[38] and Braunwald et al[39] have also written on the subject of dye-dilution curves following central aortic injection. This method was used in the study of the present case and was found useful. Even this reasonably direct method does not circumvent the difficulty arising from the coëxistence of aortic regurgitation which allows the dye to enter the left ventricle and then shunt via a ventricular septal defect which may be present. To be sure, this diagnosis can be excluded by demonstrating the absence of instantaneously appearing dye in a dilution curve recorded from the left ventricle following injection into the aorta above the valve; however, this would probably entail the added procedure of transeptal catheterization. For this reason the combined use of dye dilution techniques and selective angiography is often indispensable, as was true in the case of this report.

## Conclusion

Rupture of aortic sinuses of Valsalva with or without aneurysmal dilatation into the chambers of the right heart may be completely asymptomatic. Correct diagnosis with accurate anatomic definition necessitates the use of specialized diagnostic techniques including retrograde aortography and selective dye-dilution studies.

N.B. Requests for reprints should be directed to Dr. Massumi.

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(*Continued on page 356*)

# PRESIDENT'S PAGE

## THE DOCTORS' PLAN

It is with the greatest regret that I have completed my term as a member of the Board of Trustees of Medical Service of the District of Columbia. In the 15 years of its existence I have been associated in one capacity or another with its operation. This has given me an insight into the Plan's operation which I wish all of my colleagues could have experienced. More than that, it makes me proud of our Medical Society's sponsorship of the Plan, which has so greatly eased the burden of medical costs for many thousands of our fellow citizens. Civic leaders in the Washington Metropolitan Area have from time to time stated publicly that establishment of Medical Service was a major contribution to the public welfare.

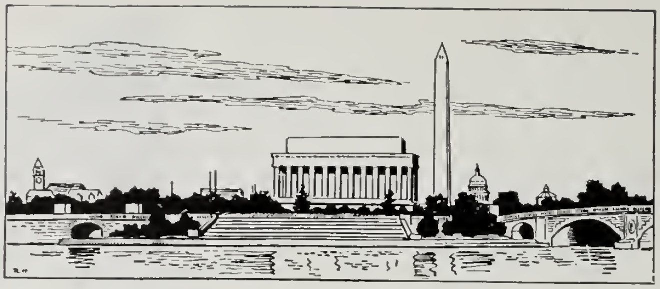
I am, of course, well aware that not all physicians agree with all of the policies of Medical Service. That, in my opinion, would be expecting too much. As a matter of fact, if there were no differences there would be cause for concern, because it would signify a lack of interest. The important thing is that we physicians reason together and offer constructive proposals in an effort to arrive at solutions which are fair to the medical profession and subscribers.

My colleagues who lack enthusiasm for any plan must accept the fact that prepaid medical care is here to stay. This being so, they must see to it that the medical profession is not hampered in providing the best medical care, and that necessary restrictions be self-imposed. After all, physicians are the only experts in this field. It is in this sense that ours is truly "The Doctors' Plan."

At this point, let me add that only in a Blue Shield Plan do physicians have a voice. Without wishing to be critical, I regret that more of them do not take advantage of this prerogative by attending the annual meeting of Participating Physicians. One can only come to the conclusion that the majority are satisfied with the Plan and the manner in which it is conducted.

More than 1 million people in the Washington Metropolitan Area are served by our Blue Shield Plan. There can be no more dramatic evidence of confidence than this. Let us make it clear that the confidence is well placed and that our commitment to make our Blue Shield Plan the best possible is irreversible.

Edward W. Nickles



# EDITORIALS

## On Family Practice

"TODAY the personal physician is threatened with extinction." This startling quotation from the J.A.M.A. of April 6, 1964 opens another of many recent articles concerning the future of general practice. Most of them are pessimistic, and most offer suggestions for changes which fit the author's special interests. The thoughtful reader, however, begins to question the reality of a crisis in family practice. He reflects primarily on the community's needs and on the ability of physicians to fulfill them.

First, the people in this community want family physicians. Each wants a doctor he can turn to for advice, preventive medicine (immunizations, annual examinations), and diagnosis and treatment of his illnesses. He understands the advantages of a large laboratory and is willing to have many of his tests performed there. He will recognize the need for referral to a specialist when his illness demands it but wants to return to his personal physician afterwards.

We meet diverging opinions concerning who should perform this necessary service and how he should be trained. Articles by professors of medicine usually indicate that internists and pediatricians are the appropriate personal physicians. Other authors favor the clinic approach, where specialists in all fields are available. General practitioners feel that this is primarily their function. Each point of view has a firm basis, but there is no one position which is more nearly "right" than the others.

If medical schools are educating their students adequately, cannot any graduate with 1 year's rotating internship offer family medical care or act as personal physician? I believe he can. Further training as a specialist should not diminish this capability but should enhance it. The physician himself may then decide when his experience, reputation, and ability allow him to restrict himself completely to his specialty field. Most, however, continue to act as personal physician to many of their patients as long as they are in active practice.

For years the ability of any one man to offer family medical care has been challenged by the vast amount of general medical knowledge available and the speed with which it increases and changes. The American Academy of General Practice has met this challenge more forcefully than have any of the specialty groups. Its well-planned, compulsory program of continuing education allows any conscientious physician to offer modern care to all his patients.

The place of internists in supplying family care is rather easily described. Most internists act as personal physicians for the adults whom they serve. They leave the area of general practice, however, in the exercise of their true specialty functions: diagnosis and management of severe, complicated, or obscure illnesses. These are primarily consultative functions and terminate with the patient's return to his own personal physician. In many cases the same internist serves a single patient in both capacities, and it may be here that confusion arises concerning the role of the internist. Like any other specialist, he may decide if and when he feels ready to restrict himself entirely to his specialty functions.

Training in family practice lasts a lifetime. Long, formal residency training will not necessarily produce a more capable general practitioner. In fact, it may inhibit his progress by leading him toward believing that most good medicine is practiced in hospitals. Only later does he learn that the vast majority of his finest work is done in his office and in the patient's home. He may, therefore, profit more from rather short hospital

*Opinion expressed in contributions to the Editorial Section are those of the writers and do not necessarily reflect the views of the Medical Society of the District of Columbia* training followed by active private practice and a constructive program of continuing education.

To interest young graduates in family practice, the medical schools and teaching hospitals must give the section on general practice full status, equal to that of any other section. These men should be encouraged to become active staff members and teachers. Their contribution will be valuable in more than only academic terms. They will bring in experience, closeness to patients, and a refreshing love for humanity, all of which will inspire some of the best graduates to follow their example. This can be done, and we in private medicine should insist that it be done.

Family practice is neither dead nor dying. The community wants it and needs it. Physicians are available and able to provide it, some with their entire practice time, and some in addition to their special fields. Let us all recognize its rewards as well as its responsibilities, and let all physicians learn again to respect one another regardless of specialty designations.

Robert R. Montgomery, M.D., F.A.C.P.

## Eligibility Criteria of Hospital Service Agency

The Hospital Service Agency, which certifies the eligibility of your medically indigent patients for financial assistance with their hospital bills, has acted to review one of its basic eligibility factors.

The review, brought about by an apparent misunderstanding on the part of several physicians new to the community, concerns the element of physician's services. The policy of this Agency was continued and reëmphasized as follows: "A patient is eligible for assistance through United Givers Fund allocation only if on staff service or with the clear understanding that the physician's services are donated."

For those physicians new to the area, this Service Agency provides the physician with reasonable assurance that his donated services are rendered to those patients in need of such assistance. Further, it reduces the possibility of indigent and medically indigent patients moving without recourse from one hospital to the next with each new sickness. Centralized records and a program of coördinated evaluation causes the patient to become registered with the proved detail of family resources. Also, families coming to the area for the primary purpose of receiving free hospital and medical care are referred to appropriate financial resources within the state of their residence.

Your concern for the patient's welfare and the most appropriate utilization of the limited community UGF hospital care dollar is certainly appreciated.

William H. Evans
*President, Hospital Service Agency*

## D. C. Psychiatric Convalescent and Rehabilitation Center

The recently opened Psychiatric Convalescent and Rehabilitation Center of D. C. General Hospital has just completed its first year of operation. The Center is located in the Old Psychiatry Building which was completely refurnished and renovated before operation began. Treatment programs of the Center are geared for that group of psychiatric patients who do not need full hospitalization but who require more supervision for and structure to their treatment than can be supplied by a psychiatric clinic.

The fundamental emphases in the Center are on self-responsibility, self-respect through productive work, self-realization through a group living experience that is regulated yet understanding and warm, and maintenance of maximum contact with the patient's family and community ties. The structuring of treatment programs is flexible, depending on each patient's situation, but in general there are 4 broad types of programs.

1. Twenty-four hour residential treatment.

2. Day care. In this category patients attend the Center approximately 8 hours a day, usually 5 days a week, although where indicated 6 or 7 days a week. Day patients receive breakfast and lunch at the Center.

3. Night care. This type program is for patients with jobs in the community or for housewives who spend the day at home and nights in the Center. While most of the structured formal therapies are during the day there is an evening group therapy arrangement for night patients and also a separate

group session for patient's relatives. Night patients usually have supper and breakfast in the Center.

4. Part-time care. Patients in this category can spend several hours a day in the building, coming in for as many days each week as indicated. Usually such patients eat 1 meal during the day attended.

Depending on the clinical picture, there can be shifting from one category to another as the needs of treatment require. Where it is to the patient's best interest he is encouraged to continue contact with the referring treatment facility and/or therapist.

All District residents are eligible for admission provided they are able to live on a completely open unit, are ambulatory, are free from alcohol and drugs at the time of admission, and are over 18 years of age. The Center as yet has no treatment programs for either children or adolescents.

The cost to the patient is based entirely on his ability to pay, with a prorated per diem based upon his financial situation at the time of his admission.

Regardless in which program a patient participates, all the ordinary psychiatric treatment modalities are available to him. In addition, housed in the basement of the Center is a series of vocational training laboratories which can provide refresher training for those people who have lost their skills through disuse. These laboratories have equipment and facilities for training in the following areas:

a. Woodworking—hand and power tools
b. Metal working—hand and power tools
c. Industrial painting—brush and power spraying
d. Laundering
e. Janitorial services—hand and mechanical equipment
f. Electrical work and small appliance repair
g. Sewing and dressmaking
h. Typing and other clerical skills
i. Mechanical drawing
j. Small wheel appliance repair
k. Blue print reading
l. Complete kitchen training
m. Training in other types of work which is available in or on the grounds of a large general hospital.

Patients can be referred by any individual or facility by calling the office of the Director of the Center, Lincoln 7-9200, extension 7264, and making an appointment for the patient to be seen. The Center has by no means reached its maximum service to the community and is in need of many more patient referrals.

Arthur H. Kiracofe, M.D.
*Director*

## Committee on Cancer Control*

The Cancer Control Committee of the District of Columbia Medical Society is one of the largest committees of the Society and one for which there are the most requests from members who wish to serve. This indicates a deep interest by members of the Medical Society in the Cancer Problem.

Prior to the last World War the Cancer Control Committee was perhaps the only medical group in the community which had an active interest in Washington's Cancer Program. However, since the War the American Cancer Society has organized a medical and a lay group, which are active in this area. The District Health Department has enlarged its activities to include a Division of Cancer Control. Also, the divisions of the United States Public Health Service (mainly the Bureau of States Services and the National Cancer Institute) have active programs in this area. Since Cancer Control programs now emanate from all these and other sources the Medical Society should review its present position and the course it is to follow.

Community medical programs should have Medical Society leadership. Perhaps the Society and its Cancer Control Committee have not been sufficiently aggressive in this regard. Members of the Society serve in many capacities in all the previously named organizations in the community, especially in the activities of the local Cancer Societies. However, might it not be better if the Medical Society were more active and influential in designating those of its members who should serve on the committees and boards of these other organizations? Only to a slight degree is this done in some of these agencies, but if the Medical Society is to take an active, official interest in Cancer Control through these groups, a close integration of membership must be arranged with leadership from the Medical Society. Otherwise, medical planning will be subsidiary to nonmedical direction. It is the aim of the Cancer Control Committee to strengthen the position of the Medical Society in this regard in the ensuing year.

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* This editorial was submitted by the Chairman of this Committee in response to a request from the President of the Medical Society that he describe its functions and activities for readers of the Annals.

Calvin T. Klopp, M.D.
*Chairman,*
*Committee on Cancer Control*

## The International Medical Club of Washington, D. C.*

In 1927 the late Dr. George B. Trible was a dinner guest of the International Medical Club of New York whose purpose was to welcome to our country prominent physicians from foreign countries. Dr. Trible was informed that there was a similar club in San Francisco with the same purpose.

On his return to Washington, and realizing that Washington was becoming more and more a magnet for all foreign visitors, he conceived the idea of forming an International Medical Club of Washington, D. C., similar to the ones in San Francisco and New York. Dr. Trible's friends readily agreed that the project was worthwhile, and in 1928 the International Medical Club of Washington, D. C. was organized and established. I quote from the original By-laws: "The objects of this Club shall be: I. The promotion of friendly relations between the medical men of American and foreign countries, to the end that a better mutual understanding may ensue between all medical groups of foreign nationalities and Americans. II. The promotion of the objectives sought by distinguished foreign medical visitors while they are in Washington and the establishment of desirable social contacts with them so that they may properly enjoy their stay among us."

Among the first to join, all medical graduates prior to 1901, were Dr. Thomas S. Lee '91, Dr. William Gerry Morgan '93, Dr. Francis R. Hagner '94, Dr. Walter A. Wells '97, Dr. Charles Stanley White '98, Dr. Eugene R. Whitmore '99, and Dr. Edgar P. Copeland 1900. Dr. Charles Stanley White was the first President; Dr. P. S. Constantinople was the first Secretary and remained in that office for 27 years.

For 36 years this Club has fulfilled its objectives. It has entertained many distinguished foreign physicians who have given our members the benefit of their scientific knowledge. Although, due to the change in world-wide travel ways, the similar clubs in New York and San Francisco have ceased to function we still believe that there is a need for our being here, so we carry on. As the Great Physician said to his disciples and followers, "Be ye given to hospitality."

A. B. Bennett, M.D. '01
*Historian*

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* Editor's note: This is the first of what is hoped will be a series of articles describing the origin, history and important activities of the smaller medical societies in the Washington area.

## Georgetown Honors a Son and Other Leaders

Georgetown University commemorated its 175th anniversary with a Founders' Day Convocation, March 19. Honorary degrees were conferred at that occasion upon 6 outstanding scientists, educators and writers. They were Dr. Hugh H. Hussey, formerly Dean of Medicine at Georgetown University, now Director of Scientific Activities at the American Medical Association; Dr. Robert M. Hutchins, President of the Center for the Study of Democratic Institutions, who gave the principal Convocation address; Vice Admiral Hyman G. Rickover, U.S.N.; the Reverend Francis J. Heyden, S. J., Professor of Astronomy at Georgetown; the Reverend Franklin C. Fry, Chairman of the World Council of Churches; and Barbara Ward, Lady Jackson, British economist and writer.

The citation honoring Dr. Hussey described in elegant prose his 4-fold role during a distinguished career as healer, researcher, teacher and administrator. The citation follows:

> "With learning, skill, and sympathy born of study, practice, and love of his fellow men, the physician moves among us to heal disease, to soothe pain, to restore the sick to health, and, if such be the will of life's Author, to stay the step of approaching death. The same resources of learning ever renewed, of skill made perfect in practice, of sympathy deepened by living with men, are brought by the teacher to his task of self-multiplication through self-sacrifice. Nor will the same qualities be less fruitful in the physician teacher-administrator,

whose part it is to suggest new pathways to knowledge, to encourage the development of ever higher skills, to keep human the pursuit and the practice of the healing arts.

"It is, therefore, most right for Alma Mater to honor a twice cherished son whose career has successfully combined the roles of physician devoted to the search for knowledge and of teacher devoted to its communication and who has been invited by the American Medical Association to assume an administrative position in which his talents and his experience will coöperate to facilitate and promote both research and teaching.

"And so Georgetown University expresses at once her gratitude and her high hopes when she creates and proclaims Hugh Hudson Hussey Doctor of Human Letters, *honoris causa*."

Awarded Viennial Silver Medals for 20 years of devoted part-time service to Georgetown were the following faculty members of the School of Medicine: Dr. Roy G. Klepser, Clinical Assistant Professor of Surgery (Thoracic); Dr. Richard H. Todd, Clinical Associate Professor of Pediatrics; Dr. Inez E. Wilbur, Clinical Instructor of Surgery (Ophthalmology); and Dr. Dorothy V. Whipple, Clinical Associate Professor of Pediatrics.

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# Health Dept. Notes

## Case-finding in Venereal Disease

Of the various health problems which exist in the District of Columbia there are few of greater concern than venereal disease. This concern is justified: a primary syphilis rate of 92.3 per 100,000 population has placed the District second among U. S. cities of a half-million or more.

We in public health approach VD as a treatable, communicable disease which has epidemiologic significance. The latter is our particular interest.

VD control begins with case-finding, and case-finding must begin with laboratory reporting of all positive reactors. The Health Department's effectiveness in this effort has been enhanced by the Commissioners' ruling (1963) that medical laboratories in D. C. are to report within a day their positive findings on syphilis. The program is scarcely a year old; coöperation generally has been good.

But laboratory reporting is not diagnosis; each positive serological test does not mean active new syphilis. There are too many false positives and other variants for this to be prima facie evidence of VD. What is required to complete the finding is the physician's diagnosis, his confirmation or denial. The physician's role here is the key one, and the Department of Public Health is prepared to work closely with the medical profession in this matter of diagnostic verification.

The Department maintains a confidential register of known VD cases, just as with tuberculosis and certain other communicable diseases. We in public health are aware, however, of the social implications of VD. Access to this double-coded register is highly limited and file security is strictly enforced. This point is made to dispel any thought that VD records might ever become public.

Because VD is recognized as a threat to community health the Department offers direct patient services through its public clinics. Blood samples taken in these clinics are tested in departmental laboratories and the resultant reports and diagnoses routed to the central register.

As mentioned earlier, the Department also receives required positive serological tests reported by public, private, and hospital laboratories which operate in the District. What is next needed is the diagnosis from the physician who ordered the tests, and until this is done little can be accomplished in the epidemiology of VD.

Many laboratory reports involve persons who are already on the register. For epidemiologic follow-up these can be closed out quickly. It is the newly-found patients and the as yet undiagnosed positives who require further effort.

The epidemiologist in VD works only through the physician to reach the patient; there is no attempt to interview without prior physician approval. This fact and the confidential nature of the information obtained cannot be too strongly stressed.

As Director of Public Health I invite the coöperation of each medical practitioner in the District in our campaign against venereal disease. I especially ask that you advise the epidemiologists at Northwest Central Clinic of your VD diagnoses so that we may immediately establish the pattern in each case.

It is the concern of the physician to care for the individual patient; it is the responsibility of the Department to protect the health of the community. There is no conflict of interest here.

My colleagues and staff will welcome the opportunity to discuss the Department's VD control program with physicians in the District of Columbia.

Murray Grant, M.D., D.P.H.
*D. C. Director of Public Health*

## Medical-Dental Economic Bureau

A NEW COMPUTERIZED BILLING and bookkeeping system is now being offered through the joint efforts of the Medical and Dental Societies of the District of Columbia. Due to numerous inquiries and basic needs of the 2 professions in the areas of billing and bookkeeping, investigation was begun over a year ago into the practicability of providing services designed to aid the physicians and dentists with the business side of their practices.

Until now professional men have not been able to take advantage of modern business mechanisms because of the high cost of the machines and their inapplicability to smaller office procedures. Research has shown that although an individual office cannot afford the cost of computer automation, savings in cost and time can be realized by taking advantage of the combined purchasing power of organizations such as the D. C. Medical and Dental Societies.

With this in mind, the Medical and Dental Societies are setting up a Bureau which will investigate, study and operate various business mechanisms which might be offered as services to the doctors. It is hoped that the utilization of such services could result in savings that might hold down the cost of medical care to the patient, thus tending to improve doctor-patient relationships.

### Complete Control by Societies

A most important feature of M-DEB is that it is under the direct control of both Societies, the By-laws requiring that the Board of Directors consist of the same number of representatives from each Society. Therefore, members are assured that the high ethical standards of their professions are maintained, and if any savings are possible, they will be reflected in the cost of services.

### How the Billing System Works

The basic system is one of the simplest and newest innovations in modern machinery devised to reduce to a minimum the bookkeeping duties of the office secretary or nurse. An IBM 1001 transmittal machine is placed in each subscriber's office. It is the size of an average-sized telephone call-director and is capable of transmitting billing information over ordinary telephone lines to the central receiving station, which will be located in the Medical Society's building.

The 1001 is attached to a Data-Phone, which is installed by the telephone company and can be used in place of the regular phone. The nurse transmits the billing information by feeding prepunched IBM cards into the machine. The information includes the name of the doctor and patient, the charges, treatments, adjustments, and payments. It is estimated that the average office can transmit all of the day's information in 15 minutes.

The subscriber maintains control in his office. Interim Reports are made for each member to allow him to control individual patient charges, review transactions at a glance, and make any corrections or additions deemed necessary prior to the mailing of monthly statements.

Monthly statements are prepared automatically by IBM computers. The statement will have the doctor's name and address imprinted at the top, and information regarding the type of treatment will be clearly printed with no abbreviation or codes. The statements will be mailed in an envelope imprinted with the doctor's name and address, and a self-addressed envelope will be enclosed for payment.

He will receive a Monthly Report which will indicate the entire month's transactions by patient name. This may be utilized for easy reference if statements are questioned by patients. Totals will indicate the amount of services rendered during the entire month as well as a running total of accounts receivable to that date.

An Aged Receivables Balance Report, also supplied each month, will show those accounts that are current and those that have not been paid for 30, 60, 90 days or over. This report will indicate the age of receivables and which accounts may be considered delinquent for more firm handling.

Besides the basic reports to the subscriber, additional reports can be prepared from the data already accumulated in the natural course of the service. Analyses of services, of income, tax information and many other reports may be obtained by the subscriber on an individual request basis. It is anticipated that in the future this system may also be adapted for automatic completion of insurance forms. Medical Service of D.C. has allowed the use of its identification codes in the system; this should greatly increase the processing time of payments on claims to the doctors.

an easier way?

**'METHEDRINE'® brand**

**METHAMPHETAMINE HYDROCHLORIDE**

**is an easier way to help control food craving & keep the reducer happy**

With "hunger pains" abolished, the patient can shrug off the chains of psychogenic craving that bind him to his habit of overeating and cooperate cheerfully with the prescribed diet.

In obesity, "...our drug of choice has been methedrine (methamphetamine hydrochloride)... because it produces the same central effect with about one-half the dose required with plain amphetamine, because the effect is more prolonged, and because undesirable peripheral effects are significantly minimized or entirely absent." Douglas, H. S.: West. J. Surg. **59**:238 (May) 1951.

**Description:** Each scored tablet contains 5 mg. 'Methedrine' brand Methamphetamine Hydrochloride.

**Dosage:** 2.5 mg. (½ tablet) 3 times daily. May be increased gradually according to response; more than 10 mg. daily rarely is needed. The last dose of the day should not be taken later than 6 hours before bedtime.

**Side effects:** Insomnia may occur if taken later than 6 hours before retiring. The usual peripheral actions of sympathomimetic amines (vasoconstriction and acceleration of the heart) are minimal and little noticed on low or moderate dosage.

**Contraindications and precautions:** Should not be used in patients with myocardial degeneration, coronary disease, marked hypertension, hyperthyroidism, insomnia or a sensitivity to ephedrine-like drugs. Moderate hypertension in the obese is not necessarily a contraindication since it may be relieved as the overweight is reduced.

**Supplied:** Tablets 5 mg., scored, in bottles of 100 and 1000.

Complete literature available on request from Professional Services Dept. PML.

**BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.**

### Billing Service at Cost

The cost structure reflects only the basic operating and administrative expenses. There is no additional commercial margin of profit added.

Every effort has been made to keep the cost to the individual subscriber to a minimum. If more than 1 doctor can utilize one 1001 machine, the cost decreases significantly. For example, Doctor X requested cost information for his office which sends out 150 statements per month. The cost for this number is $64.00. However, Doctor X was asked if he knew of another doctor in his building who might use the same machine for transmitting, and it was found that Doctor Y down the hall also sends out about 150 statements each month. By having both doctors share the same machine the cost per each one can be reduced to $49.00, a savings to each of $15.00 per month.

### No Hidden Costs

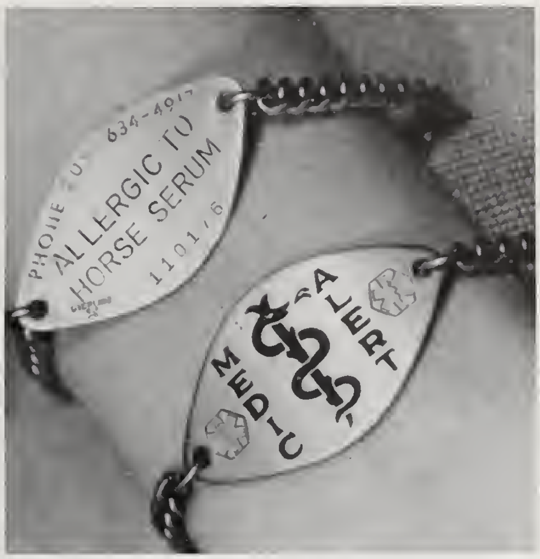
Since the doctor will be represented by his own Society there can be no hidden or additional costs in the service. On the contrary, there are actually "hidden" savings in the service since the cost of the 1001 transmitting machine, printed statement forms and envelopes, postage, inserting and mailing are included in the monthly service charge.

Fred Trust
*Assistant Director, The Medical Society of the District of Columbia*

## "Know This Emblem"

More than 110,000 persons are now wearing the Medic Alert Emblem. Distributed by the Medic Alert Foundation International, it carries on one side the Staff of Aesculapius and the words "Medic Alert" in red, while on the reverse side is engraved the immediate medical problem such as "diabetes," "allergic to penicillin," "taking anticoagulants," "wearing contact lenses," "neck breather," etc. Last year the Foundation voted to add the newly developed AMA symbol for emergency medical identification (see illustration) to the face of the Medic Alert Emblem. Dr. John Paul Lindsay, a member of the District Medical Society, is a member of the Foundation's National Medical Advisory Committee which made this recommendation.

The Medic Alert Foundation, a nonprofit organization, maintains a central file, accepting on a 24-hour basis collect calls from anywhere in the world and relaying information in the file pertaining to the wearer. Each emblem is registered and the serial number is engraved on the reverse side, as is the telephone number of the central file (209-634-4917). A percentage of each membership fee is placed in a special fund to help to perpetuate this service.



Sister organizations have been established in 6 other countries—Canada, New Zealand, Spain, The Netherlands, The Philippines, and Great Britain and the Republic of Ireland. The Medic Alert Emblem is registered in 16 other countries, and autonomous branches will be established in them, too.

Further information and membership application forms may be secured by addressing Medic Alert Foundation, Turlock, California 95380. Membership fee, with emblem (stainless steel), is $5.00; (sterling silver) $7.50.

## The Last Word

**"Blessed Are The Poor; They'll Elect Me."** So said an editorial writer for the *Chicago Tribune*, who brandished his pen against the practicalities of President Johnson's "War on Poverty." Observing that poverty cannot be budgeted out of existence, the writer recalled the sand-on-the-beach quotation of Alice in Wonderland:

> "If seven maids with seven mops
> Swept it for half a year,
> Do you suppose," the walrus said,
> "That they could get it clear?"

—*Oklahoma State Medical Journal*
March 1964

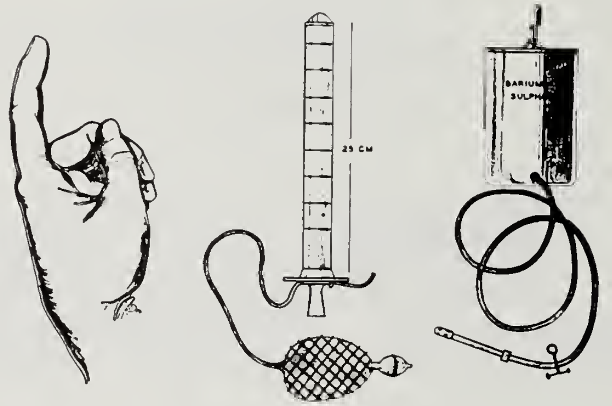
# Doctor, remember!

**The following signs and symptoms DEMAND complete investigation of the colon and rectum:**

1. Rectal bleeding
2. Change in bowel habits
3. Unexplained anemia
4. Abdominal mass
5. Increased use of laxatives

To detect rectal and colon cancer early, DIGITAL RECTAL and SIGMOIDOSCOPY must be done.

**If symptoms warrant, BARIUM ENEMA should be performed.**



In early cases the 5-year survival is 75-80 per cent.

The Monograph, "Cancer of the Colon and Rectum" has been revised.

RESEARCH
EDUCATION
SERVICE

*For your copy*
*Call or Write*

**American Cancer Society**
**District of Columbia Division, Inc.**
**810–18th Street, N.W.**
**Washington, D.C. 20006**
**EXecutive 3-3690**

# Annual Report of Physicians' Services Committee of Medical Service*

During the period, June 18, 1963 through April 28, 1964, 5 meetings were held and 475 cases were reviewed, including 357 cases involving multiple laboratory procedures. The category of cases reviewed is as follows:

| Type of Case | 1963–1964 | 1961–1962 |
|---|---|---|
| Multiple surgery | 23 | 24 |
| (with complications) | (15) | (14) |
| Eligibility questions | 14 | 8 |
| (approved) | (6) | (2) |
| Concurrent in-hospital medical care and surgery | 11 | 53 |
| Establishing a fee not in schedule | 32 | 54 |
| (in field of plastic surgery) | (15) | (46) |
| Requests for higher fees | 32 | 50 |
| (allowed higher fees) | (13) | |
| Multiple laboratory procedures | 357 | 88 |
| Surgery as a combined procedure by 2 physicians | 3 | |
| Medical visits by 2 physicians | 1 | |
| Medical visits following major surgery (readmission) | 1 | |
| Not acted upon because the problem was not clear | 1 | |

### Comments

Approximately 2,000 cases are processed daily for a year of 265 days for a yearly total of 530,000 cases. Of this total approximately 0.1 per cent are reviewed by the Committee, indicating the efficiency of the administration of the system and the coöperation of the Participating Physicians in documenting their fees.

In spite of this seemingly small number of cases reviewed it is my belief—and, I am sure, the belief of the other members of the Committee—that the work done is important and must be continued.

Reëmphasis of the role of the Committee is pertinent. The Committee does establish fees and decide on eligibility of cases when medical eligibility cannot otherwise be decided. The establishment of fees can be made only in reference to the existing fee schedule, and in no way is this to be interpreted as representing the Committee's opinion as to the exact or true worth of any medical or surgical service. The problems of medical eligibility are sometimes extremely difficult and can be established only on the basis of information made available to the Committee.

The question of concurrent in-hospital medical care associated with surgical procedures can be evaluated only in the light of the information available. It is worthy to emphasize the need for complete statements from both the physician and surgeon involved to arrive at an equitable decision.

Finally, I would state that my 6 years of service on this Committee has been a valuable educational experience. I wish to thank Dr. A. Clagett Gray, Mr. George B. McGovern, and Mr. Arthur B. Carpenter for their valuable assistance to the Committee.

John P. Adams, M.D., *Chairman*

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* Presented at the Annual Meeting of Participating Physicians of Medical Service of the District of Columbia, May 13, 1964.

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# Report on AMA Congress on Environmental Health Problems

As an allergist I see people who have lost their ability to tolerate "normal environment." Some of these people get into difficulty due to excessive exposure to normal environmental factors, and still others get into difficulty from exposure to unusual environmental factors. Therefore, it seemed logical to me and apparently to the Executive Board of the D. C. Medical Society that I should be one of the physicians most interested in a program that was advertised with this by-line: "Can some diseases be engineered out of the environment?" Further publicity suggested that this was to be an interdisciplinary conference with representation from the fields of architecture, engineering, Public Health, agriculture, chemical industries, and so forth, with the medical profession playing host and presumably assuming leadership.

The Congress on Environmental Health Problems was held at the Chicago-Sheraton, May 1 and 2, under the auspices of the AMA Committee on Environmental Health, which is a part of the Division of Environmental Medicine and Medical Services of the AMA. Presentations began promptly and questions were answered only if they had been submitted in writing. People attending the sessions were identified by name and city only except for the press. The meeting was attended by approximately 4 to 5 hundred people, the majority of whom appeared to be persons employed in Public Health work, chemical or drug industries, and in the fields of engineering and industrial medicine. There was no apparent representation from the aviation industry (and only one reference to aviation). By and large the toxicology "experts" appeared to be NIH, PHS or medical school faculty, which certainly is no indictment, but they admitted and even professed a lack of clinical experience.

The Chairman's introductory remarks set the stage. He defined the general problem but failed to delineate the specific elements that contribute to the problem. This may have been his intent. The presentations and panels took up general areas of trouble but didn't actually delve deeply into the main problems of propriety, biologic economy, and sociologic impact. All expressions of a clinical nature were focused on widely recognized and generally accepted examples of classical toxicity. There was no mention made that some reactions to drugs and chemicals too new to have become "classical" might have equally "unclassical" manifestations.

There was complete unconcern about the segment of the population that demonstrates chronic hypersensitivity in various organs and with varying degrees of disability; even typical debate tactics were used to prevent any discussion of this point.

One contribution pointed up the values and inadequacies of Poison Control Centers and how the physician must be willing to assume an aggressive role of leadership in assisting communities to control their environmental problems. A presentation from the American Institute of Architects on the planning of healthy communities was based on such naïve concepts that it reminded me of the traditional lack of communication between the professions of medicine and law. It embarrassed me and it certainly suggests another area in which the physicians must assume their role of leadership. There were scant presentations about polluted food by nonphysicians and with no clinical bases for their remarks. There appeared to be an effort to avoid the subject.

Several "authorities" on air pollution and pulmonary function clearly stated that adequate information and methods were not yet available to delineate objectively what was toxic, to whom and how toxic—acute, subacute or chronic; reversible or irreversible; mild, moderate or severe reactions. Happily, there was some obvious inconsistency among the authorities despite scrupulous scheduling of discussions and editing of written questions.

The recommendations that came out of the Conference were that each local Medical Society establish a committee to:

1. Maintain an interest in the subject.
2. Provide political coördination where geography produces confusing relationships among communities.
3. Establish medical leadership in this area.

My recommendations to the District of Columbia Medical Society are to:

1. Establish a Subcommittee on Environmental Health under the Committee on Rehabilitation and Chronic Illness.
2. Encourage participation with interested local groups in the Washington Metropolitan Area, especially with the Medical Societies in the immediately adjacent communities and counties.
3. Encourage on-going physician participation at meetings on this subject at national, regional, state and local levels.
4. Plan an educational program for members of the Society.

Clifton R. Brooks, M.D.
*Chairman, Committee on Rehabilitation and Chronic Illness, The Medical Society of the District of Columbia*

Specialists in Environmental Air Problems
**ASTHMA, HAY FEVER, EMPHYSEMA, AIRBORNE ALLERGIES**
**True Air Conditioning Is No Longer Just Heating and Cooling—For Proper All-year Control, it Must Consist of:**
**WALTON ★ Heating-Humidification—in Winter**
**CHRYSLER ★ Cooling-Dehumidification—in Summer**
**MICRONAIRE ★ Electronic Air Filtration—All Year**
WINTER HEATING reduces the relative humidity in most homes to an unsafe level causing much of the upper respiratory problems. Proper humidification can help relieve nasal and throat passages.
SUMMER AIR COOLING provides complete comfort from heat, and also works as a dehumidifier.
ELECTROSTATIC PRECIPITATION will provide relief for sufferers of airborne allergies, asthma, etc.
ENVIRONMENTAL CONTROL CO.
Portables — Central Systems — Rental Plan Available for Portable Units
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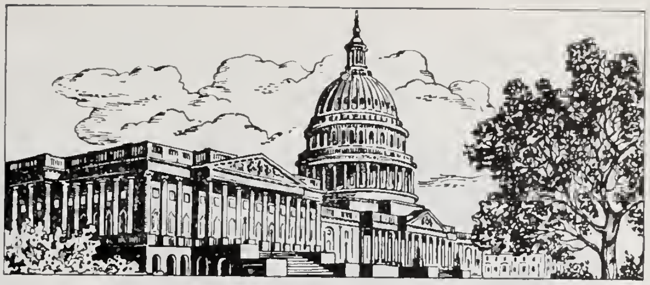

# NEWS & PERSONALS

## Summary of Executive Board Actions

**The Executive Board of the Medical Society of the District of Columbia** met in regular session, May 25, 1964, in the Society's building. Dr. Victor R. Alfaro, Chairman, presided. Present were Drs. Duane C. Richtmeyer, Edward W. Nicklas, J. Spencer Dryden, Karl C. Corley, Josephine E. Renshaw, C. Willard Camalier, Jr., and Mr. George Cooley, Secretary. Present by invitation were Dr. Frank S. Pellegrini, Chairman of the House Committee, and Mr. John A. d'Epagnier, architect for the Society's new headquarters. The meeting was called to order at 7:30 p.m.

**Committee Meetings:** The Secretary reported the following committee meetings held since the Board last met:

| | |
|---|---|
| April 22 | Subcommittee on Insurance |
| 28 | Ad Hoc Committee on Smoking and Health |
| May 1 | Review Board for Prepaid Medical Care Benefits |
| 6 | House Committee |
| 12 | Subcommittee on Insurance |
| 12 | Committee on Constitution and By-laws |
| 13 | Motion Picture Committee, Annual Scientific Assembly |
| 13 | Board of Credentials |
| 18 | Physician Placement Committee |
| 19 | Grievance Committee |
| 19 | Committee on Blood |
| 19 | Committee on Medicolegal Problems and Guest Clergymen—Dinner Meeting |
| 19 | Committee on Constitution and By-laws |
| 20 | Committee on Scientific Exhibits (ASA) |
| 20 | Liaison Committee with the Clergy |
| 21 | Committee on Child Welfare |
| 21 | Traffic Committee |
| 22 | House Committee |

**House Committee:** Dr. Pellegrini and Mr. d'Epagnier presented floor plans for the new building, which showed 2 parking areas below the ground level, a main floor with lounge and auditorium, a second floor for offices, and a third floor with 4 large meeting rooms (capacity 50 to 100 persons). In addition, 4 alternatives as to building height and floor space were offered, ranging from minimal use of area to maximum area use of 4 floors. The Board approved the last and voted to present it with other alternatives to the Society's membership, since the cost for maximum space use would exceed the money available. A special meeting of the Society was scheduled to be held, June 17.

**Board of Credentials:** The Executive Board approved the following recommendations of the Board of Credentials:

*Active Members*

Thomas McDowell Anderson, VA Central Office
Wolfram Richard Forster, 1150 Varnum Street, N.E.
Charles Wendell Freeman, 1832 Kalorama Road, N.W.
George Cromwell Gallagher, 1610 New Hampshire Avenue, N.W.
Julius Hoffman, Georgetown University Hospital
Jesse Rubin, 901 23rd Street, N.W.

*Associate Members*

Amir Seyfeddin Banisadr, 6607 Riverdale Road, Riverdale, Md.
Antonio Carmelo deLeon, Jr., Georgetown University Hospital
Marshall Allan Diamond, 3 North Perry Street, Rockville, Md.
Arnulfo Sison Rosario, D. C. General Hospital
Heinz Hanns Eduard Scheidemandel, 1600 South Joyce Street, Arlington, Va.
George F. Stevenson, 14508 Faraday Drive, Rockville, Md.

*Affiliate Member*

Harold Irvin Rodman, 1110 Spring Street, Silver Spring, Md.

*Resident-Intern Member*

Geraldine Winnie Paul, 2475 Virginia Avenue, N.W.

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**Ad Hoc Committee on Smoking and Health:** The following 4 recommendations of this Committee were approved by the Board and will be referred to the membership for consideration at its June meeting:

1. To urge every member of the Society to reëvaluate his or her smoking habits in public places in order to establish a good example for patients and the public.
2. To urge every member to make a similar reëvaluation of smoking in his or her office, for the same reason.
3. That a letter be sent to all hospitals and medical facilities urging them to consider the discontinuance of the sale of cigarettes in the facility and to discourage cigarette smoking by patients and employees in that part of the facility having patients or available to the public.
4. To publicize the first 3 recommendations via newspaper, radio and television media.

**Committee on Liaison with the Clergy:** Upon the recommendation of this Committee the topic, "Sex in Today's Culture, a Concern of Religion and Medicine" was approved for the next Davidson Lecture.

**Committee on Child Welfare:** Of 3 recommendations made by this Committee, 2 were referred to the Committee on Public Health, and the following was approved by the Board: "That the Executive Board request consideration by Congress and the District Commissioners of certain revisions in District regulations so as to reimburse all contracting hospitals at cost, less depreciation, for care provided to medically indigent infants and children eligible for hospital care under the District's welfare program."

**Special Resolution:** The Board approved a resolution concerning "the right of a physician to dispose of his income" and voted to refer it to the Society for consideration at its June meeting. If the membership approves, the delegates will be instructed to introduce the resolution to the AMA House of Delegates at its meeting in San Francisco later in the month.

The Board adjourned at 11 p.m.

## Meetings

**The Medico-Chirurgical Society of the District of Columbia** will be host to the 69th **Annual Meeting of the National Medical Association,** August 2–6, at the Hotel Statler-Hilton and the International Inn. Dr. Erman W. Edgecombe is General Chairman of the Committee on Arrangements.

At the opening meeting, Tuesday, August 4, Dr. W. Montague Cobb will be installed as the new President of the Association.

A feature of the meeting will be a Symposium on the Skin and Systemic Disease, which will be presented, August 6, at the Statler-Hilton. The Symposium will be sponsored jointly by the Sections on Dermatology and Medicine of NMA and the Committee on Cutaneous Health and Cosmetics of the American Medical Association. Dr. Adolph Rostenberg, Jr., Professor and Head of the Department of Dermatology, University of Illinois, Chicago, will be moderator. The Symposium speakers will be Dr. Herbert Mescon, of Boston University Medical Center; Dr. John A. Kenney, Jr., of Howard University College of Medicine; Dr. J. Lamar Callaway, of Duke University School of Medicine; and Dr. Frederick J. Szymanski, of the University of Illinois School of Medicine.

## General News

**Medical Service of the District of Columbia** held its 16th Annual Meeting of Participating Physicians, May 13, in the auditorium of the D. C. Medical Society. Dr. Henry L. Darner, President, presided. In his review of the year's activities Dr. Darner described the satisfying progress that has been made with the 2 new programs offered the past year, the Senior Citizen Program and the Extended Surgical-Medical Plan. Including 2,650 participants enrolled in the former, Medical Service is now protecting more than 41,000 participants who are 65 or more years of age. Federal employees have manifested their confidence in the Blue Shield-Blue Cross Plans by increased enrollment, he said.

Election of trustees followed the presentation of reports by the officers. Elected to the Board of Trustees for a 3-year term was Dr. Jack Kleh, named by the D. C. Medical Society, and elected for 1 year each were Drs. Read N. Calvert, Murray Grant, John S. Haught, Andrew P. Sackett, F. Preston Titus, and W. Leonard Weyl; also Messrs. Robert M. Holmes, Douglas R. Smith, Charles K. Stott, and Philip M. Talbott.

The Board of Trustees of Medical Service met for election of officers, June 2. Dr. Darner was reëlected President; Dr. C. Willard Camalier, Jr. was elected First Vice President and Dr. Read N. Calvert, Second Vice President. Also reëlected were Mr. Douglas R. Smith, Treasurer, and Mr. George B. McGovern, Secretary.

Dr. Leonard T. Peterson is the new Chairman of the Physicians' Relations Committee. Dr. E. S. Caldemeyer succeeds Dr. John P. Adams as Chairman on the Committee on Physicians' Services. New electees to this Committee are Drs. Thomas M. Foley, Jr., Vernon E. Martens, Frederick B. Brandt, and Hamilton P. Dorman.

**George Washington University** held groundbreaking ceremonies, May 11, for the new **Eugene Meyer Pavilion of the University Hospital.** The unit will be built on the east lawn of the Hospital at 22nd Street and Washington Circle, N.W., and is designed to accommodate 115 beds. Participating in the ceremonies were District Commissioner Walter N. Tobriner, Mrs. Meyer, Dr. Thomas Henry Carroll, President of the University, and Dr. John Parks, Dean of the School of Medicine. Other officials present were the Honorable John McCormack, Speaker of the House of Representatives; Dr. Murray Grant, Director of the D. C. Department of Health; and Mr. Victor F. Ludewig, Administrator of the Hospital.

To the total cost of the building, $7.5 million, the Meyer family has contributed $2.5 million. An equal amount has been authorized as a Federal grant by Congress. President Carroll gave the welcoming address. Dr. Parks described the new addition and the modern facilities which it will provide.

Physicians are reminded again that **vaccination against cholera** is recommended by the Surgeon General of the Public Health Service for all travelers to Asia and the Western Pacific, ex-

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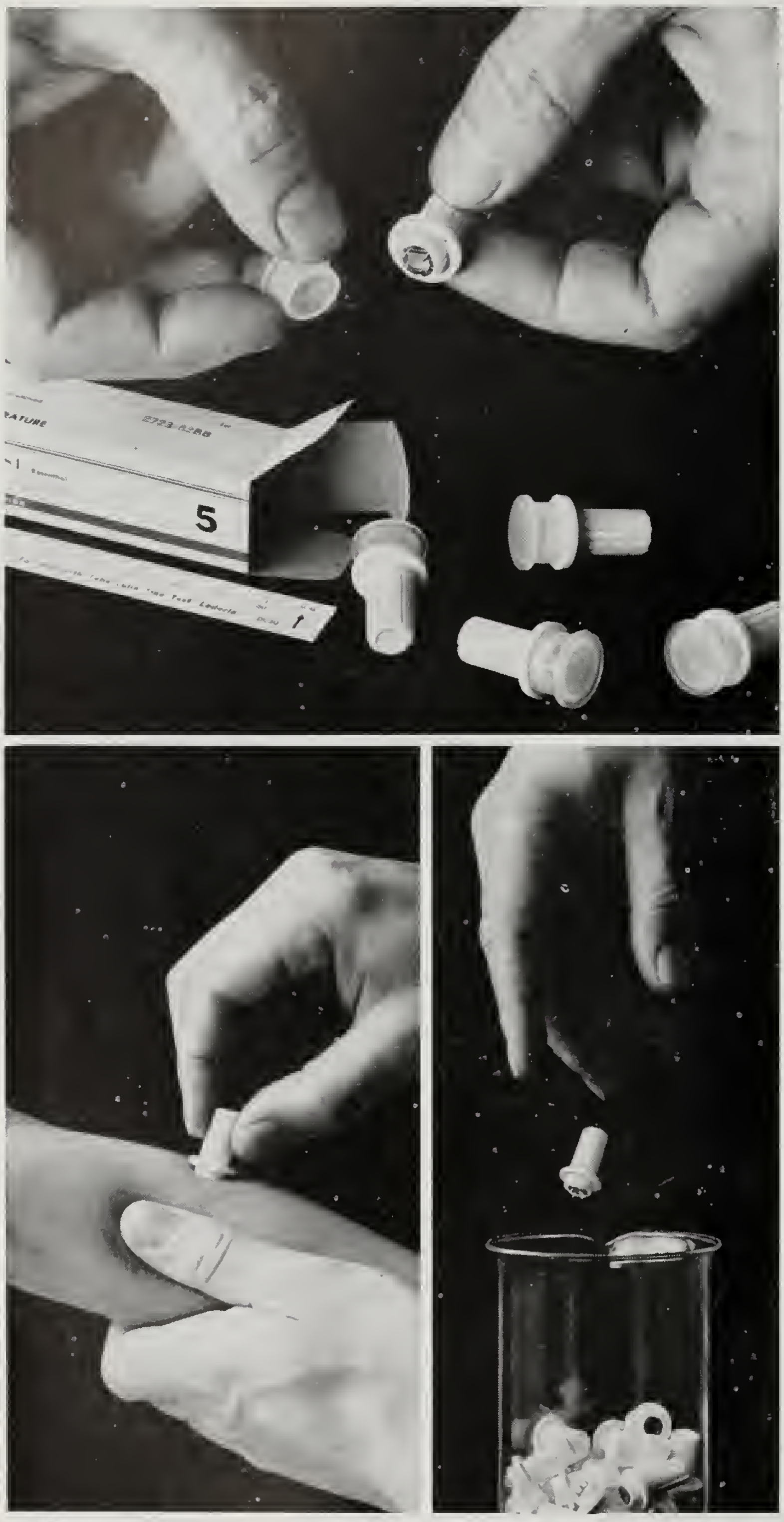

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cept babies less than 6 months old. Cholera, which is endemic in India and Pakistan, has spread to Burma, Indonesia, Macao, Malaya, Thailand, Hong Kong, the Philippines, and Sarawak. Information on required and recommended vaccinations for international travel is available from the Division of Foreign Quarantine, Public Health Service, Washington 25, D. C.

**The American Council for Emigrés in the Professions, Inc.** has taken over the work of counseling and placement of refugee physicians in the United States, a service formerly performed by the National Committee for the Resettlement of Foreign Physicians. The latter organization discontinued its operations as of December 31, 1963 as an independent corporation.

The ACEP is a non-profit, non-sectarian service organization devoted to the talent conservation of refugee professionals. The Physicians' Division, headed by Dr. Robert Boggs, has been organized within ACEP to continue the work of the National Committee. Serving with Dr. Boggs are Drs. Alex. M. Burgess, Irving Graef, and Aims C. McGuinness. Inquiries may be addressed to the Director of the Physicians' Division, ACEP, 345 East 46th Street, New York 17, N. Y.

**Children's Hospital of the District of Columbia** celebrated National Hospital Day, May 12, with Open House in the afternoon and with a dedication of the Hospital's new Diagnostic and Treatment Center. Remodeling of the outpatient facilities, begun in 1961, also provides a new wing for specialty clinics. District Commissioner Walter N. Tobriner officially opened the new outpatient center, which is one of the busiest in the Nation.

Mr. Joseph Zamoiski, Chief Barker of Variety Club Tent 11, presented a check for $15,000 on behalf of his organization to Dr. Robert H. Parrott, Medical Director of the Hospital. This marked a total of $265,000 the Variety Club has given to Children's Hospital in the past few years.

The new diagnostic wing features an X-ray image intensifier, which was a gift of the Hexagon Club.

**Providence Hospital Alumni Association** held its 15th Annual Outing at the Woodmont Country Club, May 7. Dr. T. F. O'Donovan, President of the Association, presided at the dinner which concluded the day's activities. The principal speaker was the Most Reverend Philip M. Hannan of St. Matthew's Cathedral.

Named Honor Man of the Year at the dinner was Dr. Francis W. Dunne, formerly Chief of Obstetrics at Providence. The coveted Bull Throwers Award went to Dr. Louis L. Cross, Chairman of the Department of Pediatrics. This award recognizes not only the ability of the recipient but the high esteem in which he is held by his colleagues, the hospital lay staff, and patients.

Ten staff members received 25-year awards, namely, Drs. Francis C. Allman, James C. Cawood, Richard F. Fabrizio, Bruno G. Floria, George D. Gartland, Vincent B. Hungerford, Frank S. Pellegrini, John J. Sweeney, Alfred Wilson, and Samuel Zola.

**The Section on Radiology of the Medical Society of the District of Columbia** elected the following officers, May 13:

Dr. Melvin O. Goodman, *President*; Dr. Eugene J. McDonald, *President-elect*; and Dr. Martin A. Thomas, *Secretary-Treasurer*.

Dr. Albert J. Miele and Dr. William S. Cole were elected Counsellor and Alternate Counsellor, respectively, to the American College of Radiology.

**The District of Columbia Medical-Dental Bowling League** held its 25th Annual Banquet, May 21, at the Brook Farm Resturant. Dr. George L. Ball, President of the League, who presided, presented Mr. Theodore Wiprud, former Secretary of the D. C. Medical Society, with a certificate of honorary membership in appreciation of "his sustained interest, encouragement and support of this organization from the time of its inception through the present date."

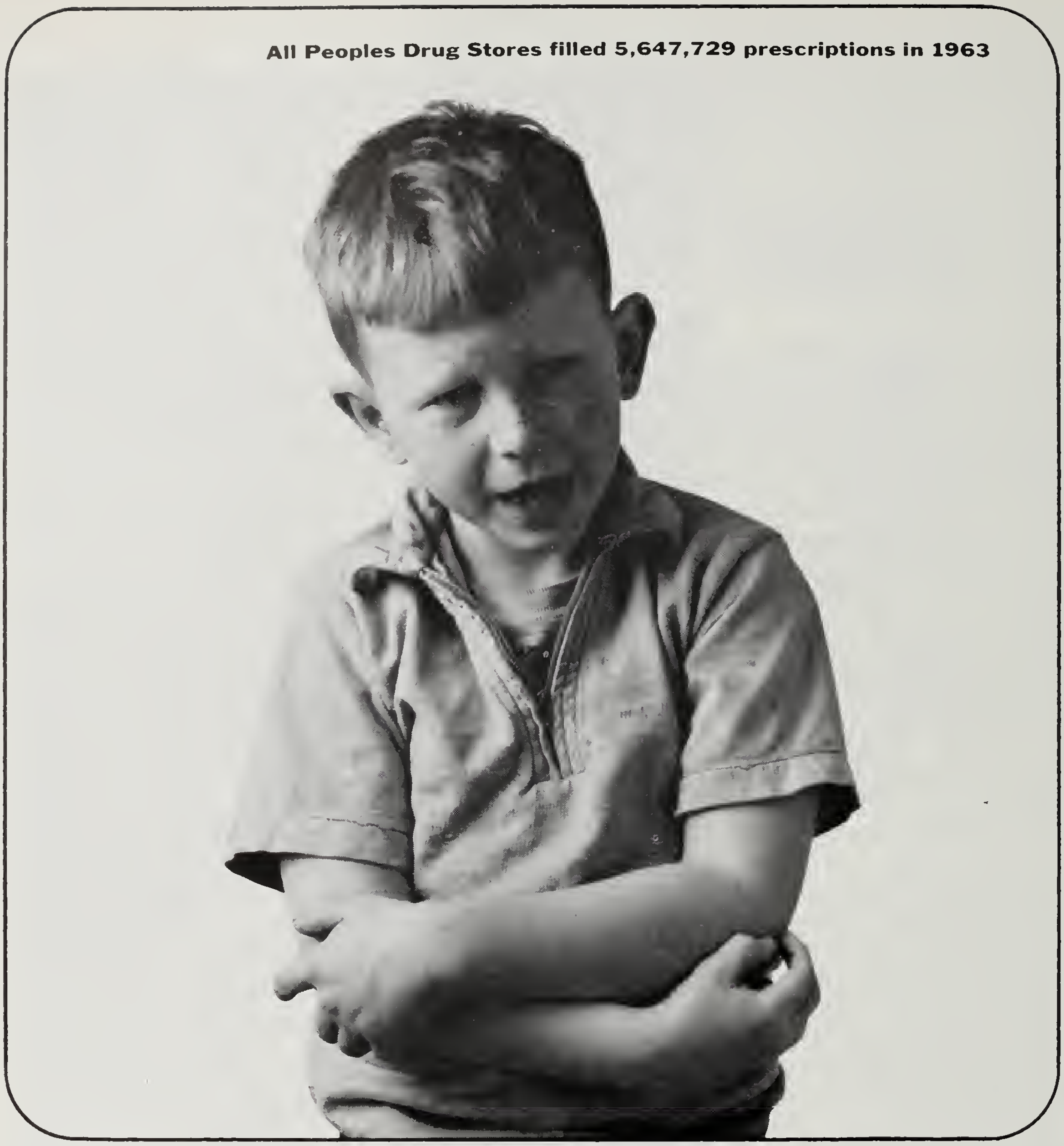
Seven members of the League were recognized at the dinner for their 25 years of membership. They are: Dr. Frank S. Bacon, John F. Finnegan, Israel Kessler, George H. McLain, Millard F. Ottman, George A. Resta, and George L. Ball.

The incoming President of the League is Mr. Frank J. Baiers. Mr. H. James Carter continues as Secretary.

**The D. C. Thoracic Society** has elected the following officers:

Lt. Colonel Joel H. Richert, MC, USA, *President*; Dr. William J. Washington, *President-elect*; Dr. Paul C. Adkins, *Vice President*; and Dr. Maurice A. Sislen, *Secretary-Treasurer*.

Dr. Moe Weiss will be the representative Councilor to the American Thoracic Society. Drs. K. Albert Harden, Milton Gusack, Robert F.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Donohoe, and Harold M. Silver were elected to the Executive Committee.

Dr. Murray Grant, Health Director of the District of Columbia, has appointed **Dr. John P. Nasou as Medical Director of D. C. General Hospital.** Dr. Nasou, a 1952 graduate of George Washington University School of Medicine, has been Chief Medical Officer for the Outpatient Division at D. C. General since 1961. He succeeds Dr. John D. Schultz, who has been appointed Associate Director for mental health and retardation.

**Other new appointees in the Health Department** are:

Mr. Charles Lindy Harper, Associate Director for administration of the Department. Mr. Harper comes from the North Carolina Health Department.

Dr. John A. Dattoli, Chief of the Bureau of Special Health Services. Dr. Dattoli, a graduate of Georgetown University School of Medicine, has been Chief of Occupational Health for Pennsylvania since 1960.

Dr. Herbert M. Wortman, Associate Director for medical care and hospitals. He has served in Pennsylvania since 1960 as Chief of Nursing Home Programs.

Dr. Harvey Vandegrift, Chief of the Division of Adult Health and Geriatrics. Dr. Vandegrift has had 15 years of hospital and clinical experience and is now completing work for a Public Health degree at Johns Hopkins University.

Mr. Dudley G. Anderson, Chief of the Accident Prevention Division. Mr. Anderson has served in the same capacity with the U. S. Public Health Service in Maryland.

**Dr. Oscar B. Hunter, Jr.,** of Doctors Hospital, has been **reëlected President of the Metropolitan Washington Blood Banks, Inc.** Dr. Kenneth McCoy, of Providence, was elected Vice President, and Dr. William Dolan, of Arlington Hospital, Secretary-Treasurer.

Elected to the Board of Directors for 3-year terms were Dr. William Battaile, of Sibley Hospital; Dr. C. B. Cook, of Fairfax Hospital; Dr. John Shaver, of Suburban Hospital; Dr. Richard Palmar, of Alexandria Hospital; and Dr. William Enos, of Northern Virginia Doctors Hospital.

Under the auspices of Project HOPE a **mass immunization program** was launched on May **30 in Ecuador** which will involve the dispensing of more than 1 million dosages of vaccine. Dr. William B. Walsh, President of Project HOPE, said the program, which includes dosages of diphtheria-pertussis-tetanus, oral polio and injectable polio vaccine, will be available to 165,000 indigent children of Ecuador. He pointed out that this is a pilot program with a primary purpose of showing the Ecuadorians how to carry out such a program, and it is done with the expectation that their own medical profession will take it over within the next few months. All of the dosages that will be used in Ecuador have been contributed by members of the drug industry.

**Group Hospitalization, Inc.** reëlected its officers at the annual meeting of the Board of Trustees, March 27. They are: Mr. F. P. Rawlings, Jr., President; Mr. Howard W. Kacy, First Vice President; Dr. Ralph D. Whitley, Second Vice President; Mr. James H. Lemon, Secretary; and Mr. Douglas R. Smith, Treasurer.

Dr. O. Hugh Fulcher was reappointed to the Board by the Medical Society of the District of Columbia for a 5-year term.

**The Doctors' Symphonetta** honored the Woman's Auxiliary to the Medical Society of the District of Columbia, Sunday afternoon, June 7, in the Washington Hospital Center auditorium with a concert which included "The Military" symphony by Haydn and a Concerto in C Major for flute and strings by Vivaldi. Sara Stern was flutist. Of special interest was a French suite in 6 movements by Duane Davidson, dedicated to the Auxiliary. Mr. Davidson, of Rural Retreat, Virginia, is a young musician, 29 years of age, who has had a composition performed at Tanglewood, won a first prize in London competition, and premiered over BBC.

The Symphonetta, under the direction of Robert Gutter, played to an appreciative audience. Dr. Isadore Alpher is concertmaster.

Following the music refreshments were served, and a social hour concluded the program.

**Colonel Ruby G. Bradley, ANC (Ret.), Counselor-Registrar of the Graduate Nurses' Association,** was awarded an honorary Doctor of Science degree by the West Virginia University at commencement exercises in Morgantown, West Virginia, June 1. Colonel Bradley has received more decorations than any woman in military history. On duty in the Philippines at the beginning of World War II, she was one of the first 2 American women to be taken prisoner by the Japanese. When the Islands were liberated some 37 months later, she received the first of her long

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list of decorations—the Bronze Star for meritorious achievements while in the hands of the enemy. Her decorations include the Legion of Merit, the Army's second highest peacetime award, and the Florence Nightingale Medal from the International Red Cross.

**Dr. Louis Jacobs** has been appointed **Chief of the Division of Foreign Quarantine** at headquarters, Department of Health, Education, and Welfare, effective July 1.

Dr. Jacobs received his medical degree from Jefferson Medical College in 1936 and holds a Master of Public Health degree from Johns Hopkins University. Prior to his new appointment he was Chief Psychiatric Consultant for the Public Health Service's foreign quarantine program in Europe.

The Northern Virginia Tuberculosis Associations have merged into a single organization called the **Potomac Tuberculosis and Respiratory Disease Association.** Counties in the new group are Arlington, Fairfax, King George, Prince William, Spotsylvania and Stafford; also the cities of Alexandria, Fairfax, Falls Church, and Fredericksburg. The Executive Director is Mr. Edward R. Seward, who formerly headed the Alexandria-Arlington Association. Headquarters address is 3280 North Fairfax Drive, Arlington.

A new, nontechnical **"Handbook of Heart Terms,"** prepared at the National Heart Institute in Bethesda, explains in clear, simple language the words, phrases and illustrations used by physicians and other scientists when discussing human heart and blood circulation subjects. The booklet is issued especially for the use of writers, editors, and teachers, and physicians may like to refer it to their patients. As PHS Publication No. 1073, it may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at 30 cents per copy. Single copies may be obtained upon request from the Heart Information Center, National Heart Institute, Bethesda 14, Md.

**General James F. Collins,** former Commander of U. S. Armed Forces in the Pacific, is the new **President of the American Red Cross.** He assumed his duties, April 1, upon the retirement of General Alfred M. Gruenther, who has served as President for more than 7 years.

**Dr. Kenneth B. Babcock,** Director of the Joint Commission on Accreditation of Hospitals since 1954, has resigned his position, effective October 1.

## Personals

Two members of the District of Columbia Medical Society were elected to office at the Annual Meeting of the American Psychiatric Association in Los Angeles, May 4–8. **Dr. Dale C. Cameron,** Superintendent of St. Elizabeths Hospital, is the new Treasurer of the Association. **Dr. Reginald M. Lourie,** Director of Psychiatric Service at Children's Hospital, was elected Counsellor for a 3-year term.

**Dr. Addison M. Duval,** formerly Assistant Superintendent of St. Elizabeths, was elected Vice President. Dr. Duval, now living in Atlanta, Ga., is a former member of the D. C. Medical Society.

**Dr. John J. Kuhn** has been appointed Chief of Staff of the Columbia Hospital for Women, succeeding Dr. Raymond T. Holden, who recently relinquished the post. Dr. Kuhn, a specialist in obstetrics and gynecology, is a graduate of Georgetown University School of Medicine, Class of 1938. He is a Fellow of both the American College of Obstetricians and Gynecology and the American College of Surgeons.

**Dr. Leo B. Gaffney** was honored at ceremonies at St. John's College High School, April 26, when he became "an affiliate member" of the Brothers of the Christian Schools. Only 3 Washingtonians now hold this honor.

Dr. Gaffney has 7 sons who are graduates of St. John's. He was honored for his medical service to athletes at the high school, for his fund-raising aid, and as one of the founders of the Catholic Youth Organization in Washington. He also has been Chief of Surgery and President of the Executive Committee of Providence Hospital.

**Dr. Edward H. Bowen, Jr.** has been appointed Director of Clinical Research for Ames Company, Inc. of Elkhart, Indiana. Before his new affiliation he was Chief of Medical Electronics and Space Medicine, Research Division, Melpar, Inc., which has offices in Falls Church, Va., and has been associated with the latter firm since 1961.

**Colonel John Boyd Coates, Jr., MC, USA,** left Washington in June to accept an overseas assignment as Deputy Chief Surgeon of the U.S. Army in Europe. As Director of the Historical Unit, U. S. Army Medical Service, since 1954, he was Editor-in-Chief of the history of The Medical Department, U. S. Army in World War II and Korea. During this assignment he was responsible for the publication of 24 volumes of the official history of the U. S. Army Medical Department in World War II and Korea, and additional works in the field of military surgery. He was Chairman of the Advisory Editorial Board for the recently published volume, "The Armed Forces Institute of Pathology, Its First Century." Colonel Coates is an Associate member of the D. C. Medical Society.

**Dr. John E. Smith** has been appointed Director of Cardiovascular Medical Services for United Airlines. Dr. William R. Albers, formerly with the Federal Aviation Agency, succeeds to the post of Southeastern Regional Medical Director, previously held by Dr. Smith. Both men will be based at United's Medical Center in Washington, D. C.

**Dr. Roscoe C. Young, Jr.,** Instructor in Medicine, **and Dr. LaSalle D. Leffall, Jr.,** Assistant Professor of Surgery, Howard University College of Medicine, were recently given Awards of Merit for their contributions to medical science by the Student Council of Howard University.

**Dr. C. Willard Camalier, Sr.** received the 1964 Jarvie-Burkhart Award at the Annual Session of the Dental Society of the State of New York, May 18–21, at Kiamesha Lake, N. Y. The award is given annually to a dentist whose dedication to the field of science and public health has brought honor to the profession. Dr. Camalier is Past President and an honorary member of the American Dental Association and Director Emeritus of the Association's Washington office. He is an Associate member of the D. C. Medical Society.

**Dr. Joseph W. Peabody, Jr.** was elected to the Board of Directors of the D. C. Tuberculosis Association at a meeting of the Board, May 13.

**Dr. Wai Lin Wong,** an Associate member of the D. C. Medical Society, has been elected to Fellowship in the American College of Anesthesiology.

# Obituaries

## George Barnett Trible, M.D., F.A.C.S.

(1883–1964)

Dr. George B. Trible, a specialist in otolaryngology who had practiced in Washington for 36 years, died, May 3, 1964, at Doctors Hospital. He had maintained his offices at 1150 Connecticut Avenue, N.W., for many years.

Dr. Trible was born in Piasa, Illinois, May 5, 1883, to Samuel and Martha Barnett Trible. He received his medical degree from Washington University, St. Louis, in 1906. Following his graduation he was House Surgeon for a year at the Missouri Pacific Employees' Hospital in St. Louis. He served in the Naval Medical Corps from 1907 to 1920 and was discharged with the rank of Commander.

After postgraduate study at the University of Vienna, the University of Pennsylvania, and the New York Postgraduate Medical School, Dr. Trible limited his practice to otolaryngology. He was on the faculty of Georgetown University

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School of Medicine from 1927 to 1933. During his service in the Navy he taught at the Naval Medical School.

He was elected to Active membership in the D. C. Medical Society in 1922 and became a Life member in 1962. He was a Fellow of both the American College of Surgeons and the International College of Surgeons, a member of the American Medical Association, the American Academy of Ophthalmology and Otolaryngology, the New York Academy of Medicine, the Clinical Club of Washington, the Pan American Medical Society, the International Medical Club of Washington, and the Washington Medical and Surgical Society. He was President of the latter in 1951–52. His church affiliation was St. John's Episcopal. He was a member of the Army-Navy and University Clubs.

His wife, Mrs. Letha M. Trible, of 2339 Massachusetts Avenue, N.W., and a son, Dr. William M. Trible, of 3406 Reservoir Road, survive him. His son is an Active member of the D. C. Medical Society.

## Clarence J. Fernald, A.B., M.D.

(1881–1964)

Dr. Clarence J. Fernald, a Life member of the Medical Society of the District of Columbia, died, April 8, 1964, at his home, 718 Park Place, St. Petersburg, Fla.

Dr. Fernald was born in Winn, Maine, June 17, 1881. He received his A.B. degree from Bowdoin College in 1907 and his medical degree, also from Bowdoin, in 1916. He interned at the Eye and Ear Infirmary in Portland, Maine, and at St. Mary's General Hospital, Lewiston, Maine. He began his private practice in Northern Maine and Canada. After graduate work in eye, ear, nose and throat diseases he moved to Washington in 1917, opening his office at Seventh Street and Pennsylvania Avenue, N.W. A few years later he moved his offices to Sixteenth Street and Columbia Road, N.W., where he practiced for 30 years.

Dr. Fernald gave much of his time and talents to civic work. He donated his services as a physician to the Central Union Mission, the Gospel Mission, and the Baptist Home. He was active in Boy Scout work for 25 years. At the National Baptist Church he was Sunday School teacher, deacon, and active in the Pinkham Bible Class. He was a founder and President for many years of the Columbia Heights Citizens' Association and active in Parent-Teacher Association work.

In 1948 he began a trip around the world and was gone almost 3 years. He returned to Washington and practiced several years before he retired.

He was elected to Active membership in the Medical Society of the District of Columbia in 1920 and became a Life member in 1960. He was a member of the Columbia Heights Businessmen's Association, the Northwest Lions Club, and the Scottish Rite Temple.

He leaves his wife, Mrs. Marie Frances Fernald, of St. Petersburg, Fla.; 3 sons: Clarence R. Fernald, of Falls Church, Va.; Fred M. Fernald, of Silver Spring, Md.; and Llewellyn K. Fernald, of Fort Lauderdale, Fla.; and 2 stepsons: C. F. Wells, of Jacksonville, Fla., and Philip A. Wells, of Washington, D. C.

**Heart-sound Interpretation—Dobrow et al**

(*Continued from page 308*)

"standard" established by bedside auscultation at the time of recording. Misclassification by listeners was analyzed with respect to the intensity of the murmurs heard or missed.

Intra-observer variation was assessed by examining results of relistening to the heart-sound recordings at monthly intervals. Both inter-observer and intra-observer variation in heart-sound interpretation were somewhat higher than anticipated.

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## Myocardial Ischemia—Halbersleben

(*Continued from page 322*)

### Summary

Ischemic myocardium varies in volume from microscopic bits to transmural masses, and in disease intensity from sickening of cells with prompt recovery through prolonged sickening with recovery or death, to quick death. Various stages may coëxist. Constancy of ischemia, or frequency and severity of its reapplication may decide survival or death of muscle units or onset of sudden malfunction. Cardiac work load is a partially controllable factor affecting ischemia, if arterial blood supply is impaired. Lessening the work load lessens ischemia, thereby preserving muscle. Time is then gained for development of arterial collaterals to better nourish ischemic regions and to apply other therapeutic measures. Electrocardiographic recovery (T-) wave abnormalities and variations with changing daily activities and rest are valuable clues for the recognition of ischemic myocardium and for indicating the narrowed coronary arterial unit. Six cases have been reported to illustrate these points.

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## Rupture of Aortic Sinus into Right Atrium—Datlow and Massumi

(*Continued from page 332*)

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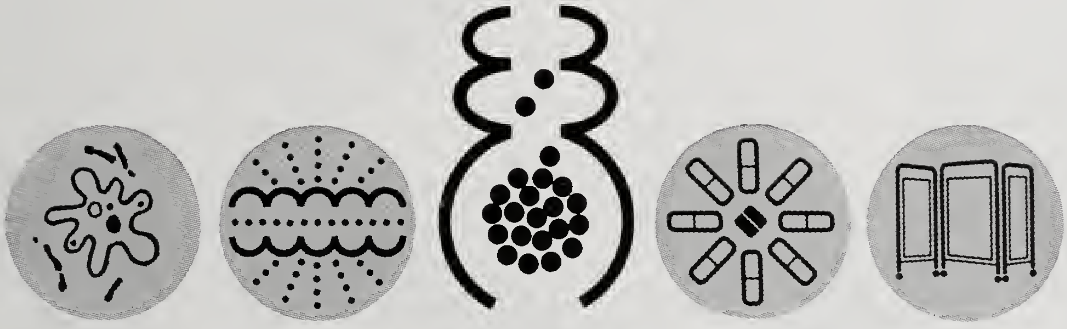

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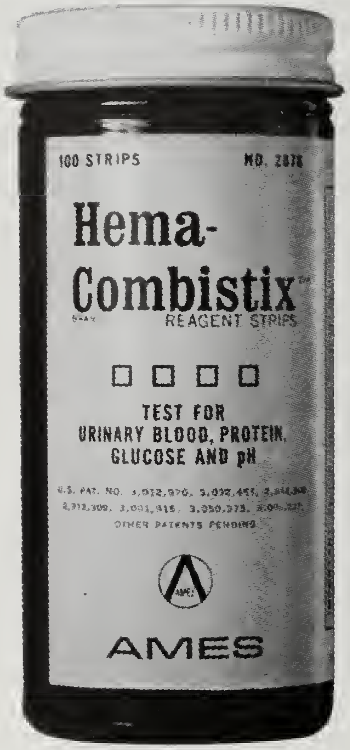

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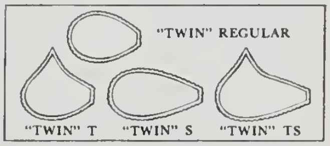

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Acknowledgment is made of the following books which have recently been received.

**The Lungs and Its Disorders in the Newborn Infant.** Mary Ellen Avery, A.B., M.D. **Volume I in the Series: Major Problems in Clinical Pediatrics.** Alexander J. Schaffer, Consulting Editor. Price, $7.50. Pp. 224, with 72 illustrations. Philadelphia: Saunders, 1964.

**Fundamentals of Otolaryngology. A Textbook of Ear, Nose and Throat Disease,** 4th ed. Lawrence R. Boies, M.A., M.D., Jerome A. Hilger, M.D., M.S., and Robert E. Priest, M.D., M.S. Price, $8.50. Pp. 553, with 215 illustrations. Philadelphia: Saunders, 1964.

**The Specialties in General Practice,** 3rd ed. Edited by Russell L. Cecil, M.D., and Howard F. Conn, M.D. Price, $17.50. Pp. 676, illustrated. Philadelphia: Saunders, 1964.

**Medical Department, United States Army: Surgery in World War II. Activities of Surgical Consultants, Volume II.** Colonel John Boyd Coates, Jr., M.C., Editor-in-Chief; B. Noland Carter, M.D., Editor for Activities of Surgical Consultants, and Elizabeth M. McFetridge, M.A., Associate Editor. Prepared and published under the direction of Lieutenant General Leonard D. Heaton, The Surgeon General, United States Army. Price, $8.50. Pp. 1062, with 365 illustrations. Washington 25, D. C.: Superintendent of Documents, U. S. Government Printing Office, 1964.

**Consultations in Medicine: Common Complaints.** Forty Contributors. Price, $3.00. Pp. 206. Philadelphia: Smith, Kline & French Laboratories, 1964.

**Cancer of the Stomach.** William H. ReMine, M.D., M.S. in Surgery, F.A.C.S., James T. Priestley, M.D., M.S. in Experimental Surgery, Ph.D. in Surgery, F.A.C.S., and Joseph Berkson, M.D., D.Sc; and Members of the Staff of the Mayo Clinic, Rochester, Minnesota. Price, $11.50. Pp. 255, with 88 illustrations. Philadelphia: Saunders, 1964.

**Ciba Foundation Symposium Lysosomes.** Edited by A.V.S. de Reuck, M.Sc., D.I.C., A.R.C.S., and Margaret P. Cameron, M.A. Price, $11.50. Pp. 446, with 79 illustrations. Boston: Little, 1963.

**Atomic Energy Encyclopedia in the Life Sciences.** Charles Wesley Shilling, M.D., D.Sc., Editor and Major Contributor. With the assistance of Miriam Teed Shilling, M.A. Price, $10.50. Pp. 474, illustrated. Philadelphia: Saunders, 1964.

**Patient Care and Special Procedures in X-ray Technology,** 2nd ed. Carol Hocking Vennes, R.N., B.S., and John C. Watson, R.T. Price, $6.25. Pp. 228, with 78 illustrations. St. Louis: Mosby, 1964.

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September 16–18: American Association of Medical Clinics. Americana Hotel, Bal Harbour, Fla. Address: Dr. R. S. Condie, *Secretary*, Palo Alto Medical Clinic, 300 Homer Avenue, Palo Alto, Calif.

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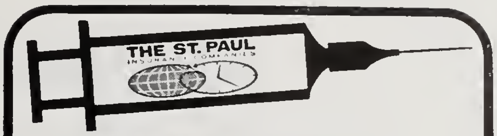

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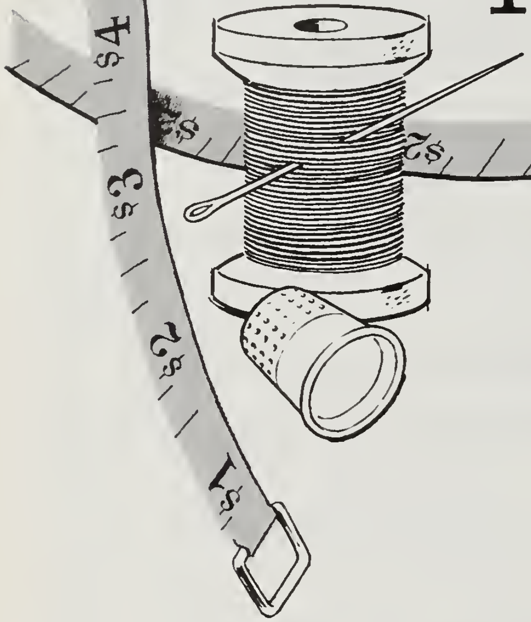

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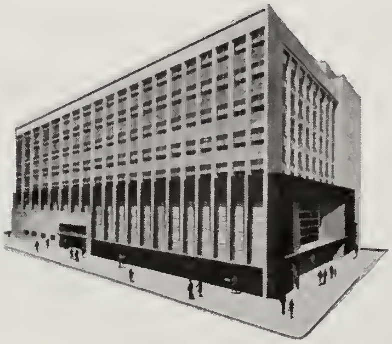

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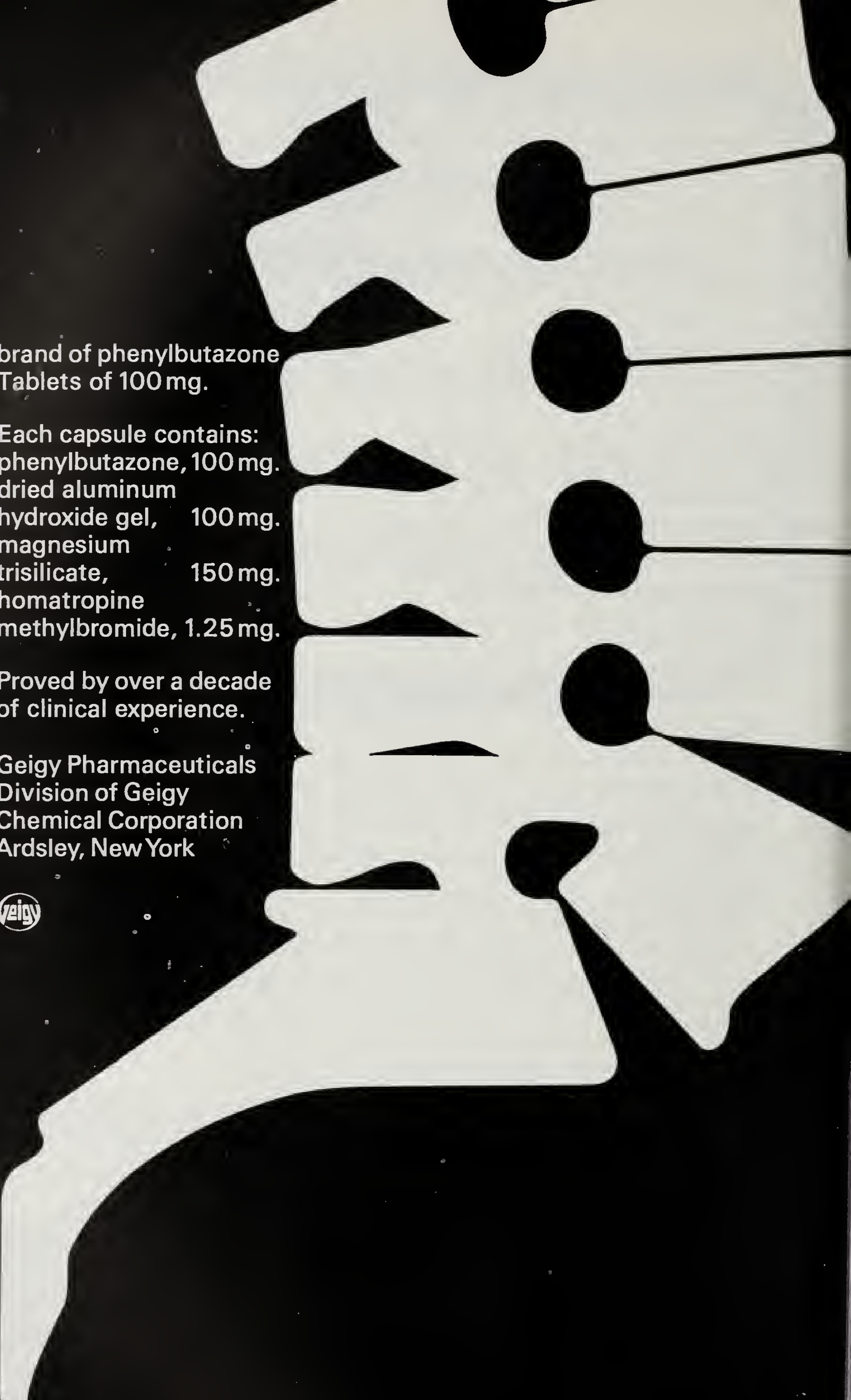

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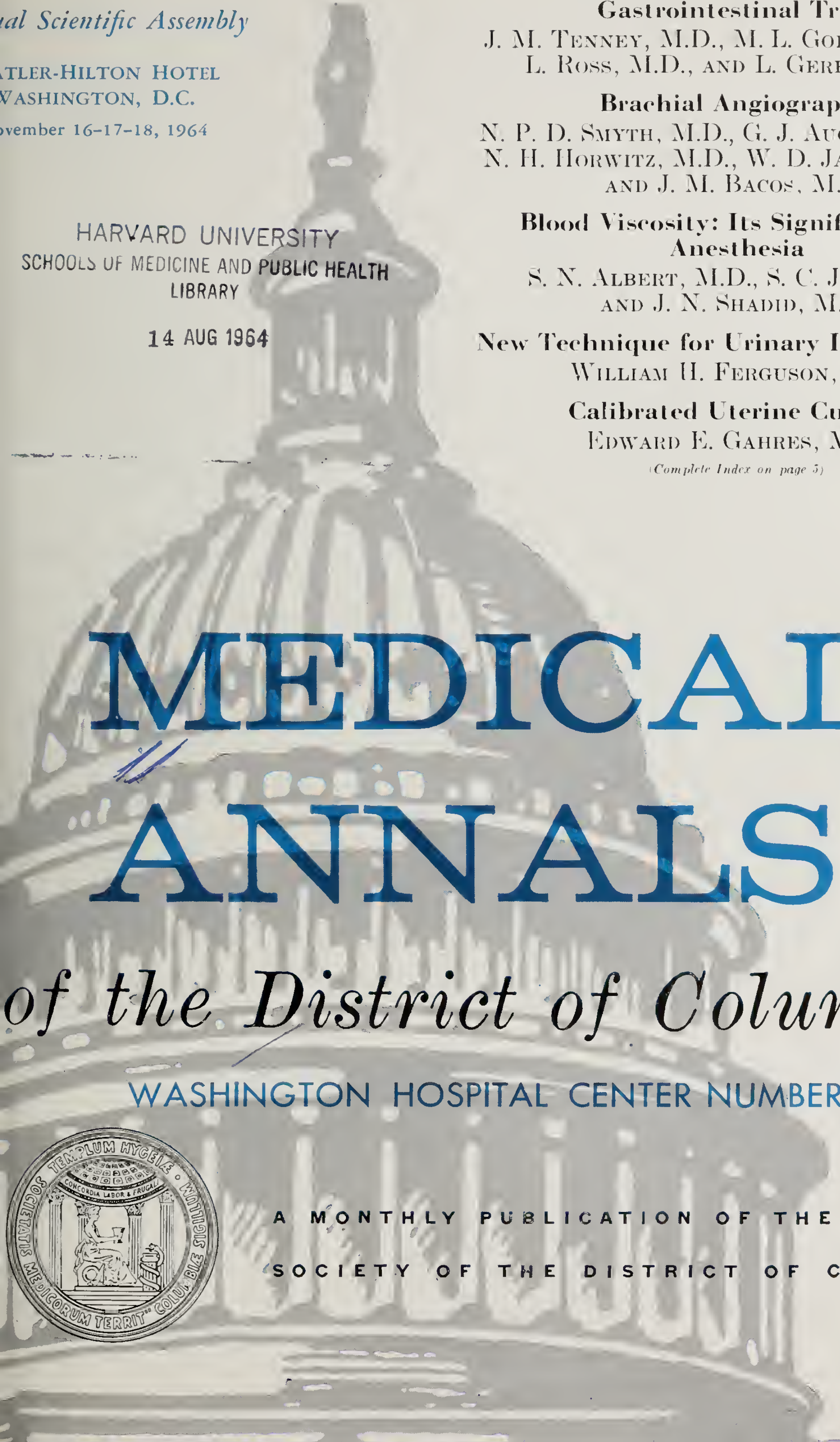

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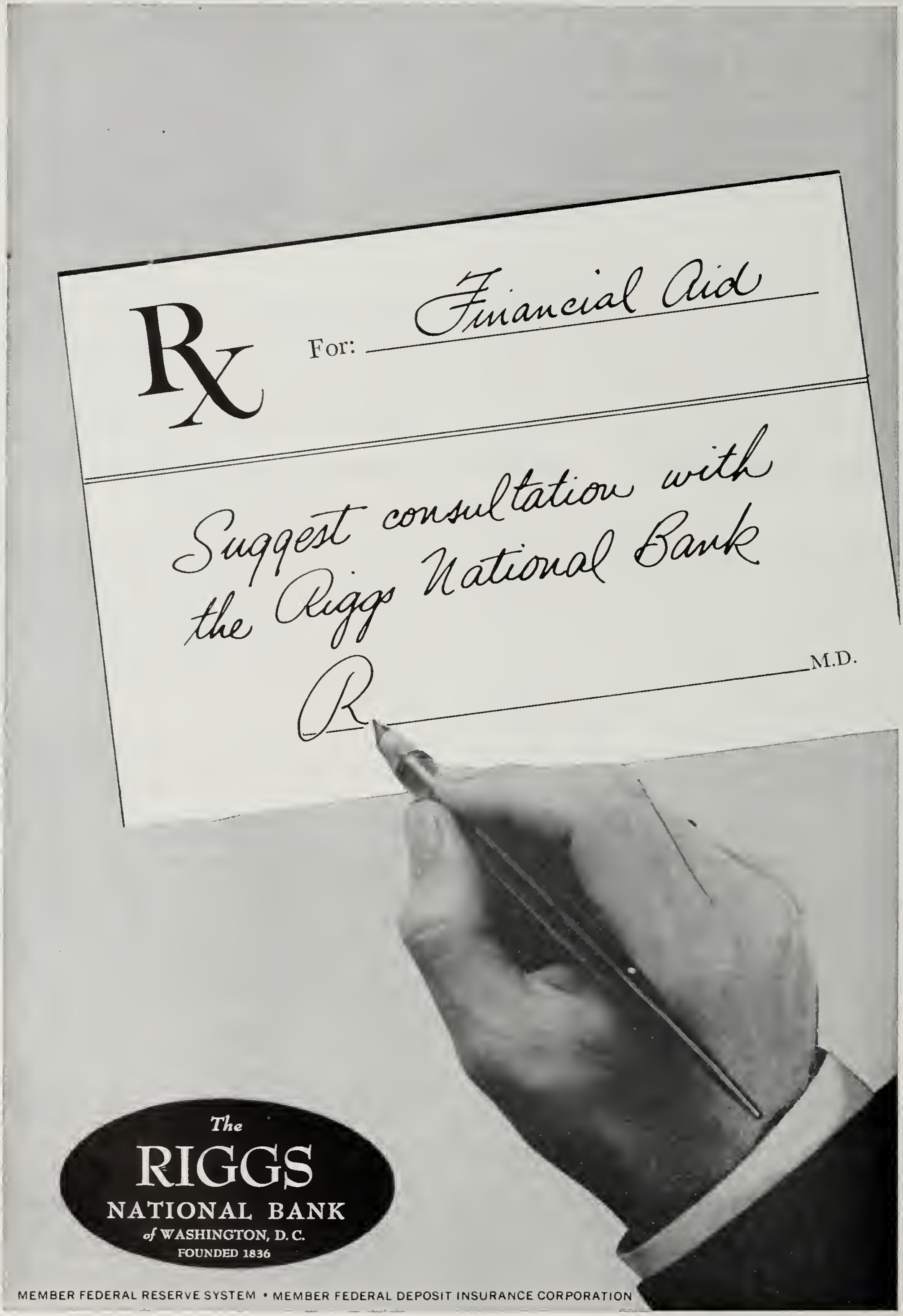

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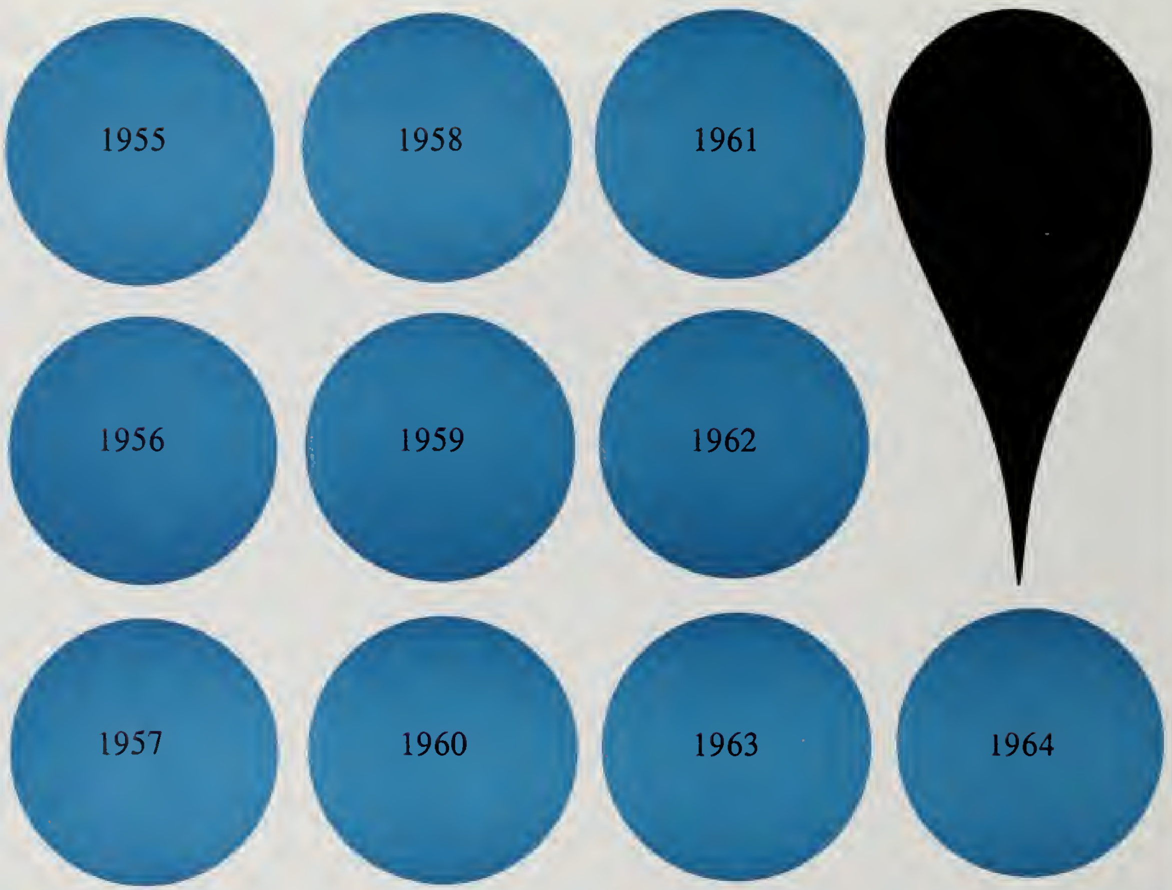

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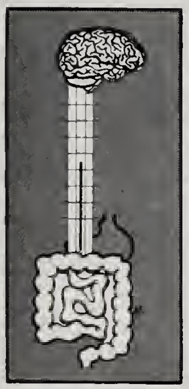

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# BOOK REVIEWS

**Surgical Pathology,** 3rd ed. LAUREN V. ACKERMAN, M.D., in collaboration with HARVEY R. BUTCHER, JR., M.D. Price, $18.75. Pp. 1244, with 1,216 illustrations. St. Louis: Mosby, 1964.

The third edition of Dr. Ackerman's "Surgical Pathology" retains the excellence of the previous editions and its readability, the seasoned observations of its authors, the excellent illustrations, and a comprehensive up-to-date bibliography. A chapter on cellular ultrastructure and its significance in surgical pathology is introduced, and electron micrographs are liberally distributed throughout the text. There have been considerable revisions in the chapters on skin, ovary, mandible and maxilla, and kidney.

The third edition retains the thoughtful introduction, which discusses the surgical pathologist, his purpose and limitations, and the material with which he deals. This chapter should be read by all who are or must have dealings with surgical pathologists.

It is difficult to criticize a book that attempts to deal with all of surgical pathology. Such a book must by nature be directional rather than comprehensive. However, the increasing use of needle biopsies as an aid in the diagnosis of medical problems is barely acknowledged in this or previous editions. Of much more practical value possibly than the introduction of electron micrographs would have been the more explicit discussions of the diagnostic values and implications of various needle biopsies. Dr. Ackerman is thoroughly impressed with exfoliative cytology as a method of diagnosis. However, he becomes inconsistent when he suggests that a lobectomy or pneumonectomy can be performed solely on the basis of positive sputum or bronchial cytology, but would recommend tissue diagnosis prior to hysterectomy following positive cervical cytology. His constant concern about pathologists' fallibilities should suggest that conservatism (not speaking politically) is the better part of wisdom.

I would feel at a loss if this book were not a part of my personal library. However, it is best read with some personal experience, with discretion, and with understanding of the limitations incurred by its scope.

MARY J. MATTHEWS, M.D.

**Fundamental Marriage Counseling—A Catholic Viewpoint.** JOHN R. CAVANAGH, M.D. Price, $8.00. Pp. 680. Milwaukee: Bruce, 1963.

This book is truly an encyclopedia of basic knowledge essential to marriage counseling. It covers the field from principles of counseling through the anatomy and physiology of the genital organs, through marriage, pregnancy, control of conception; discusses briefly some of the economic problems involved in marriage; and ends with a note on sexual activity of the aging.

While much of the information in this book is valid and useful to workers of all faiths in the field of marriage counseling, its presentation is strictly from the Catholic viewpoint and therefore restrictive in its use. There is an ever-present religious pervasion of all aspects of this book. The hidden theme is that marriage in the Catholic Church is a sacrament and as such confers an immunity against the mundane problems of living which is lacking in the ceremony performed in other faiths. This concept is not broad enough to permit good marriage counseling.

The book is well written, the material included within its scope is well organized, and it will find a place as an additional reference book in the field of marriage counseling.

J. KEITH CROMER, M.D.

**EEG and Behavior.** Edited by GILBERT H. GLASER, M.D. Price, $12.50. Pp. 406. New York: Basic Books, 1962.

This 16-chapter compilation of 26 authorities in neurology, pharmacology, psychiatry and physiology reflects both the progress and limitations of attempts to correlate behavior with indicators of brain function. It serves as a timely and effective reminder that a vast welter of invalid inferences and uncritical claims still clutter the approach to a neurophysiologic explanation of normal and abnormal behavior. The presentations are informative and objective data.

Conclusions and future potential developments are presented in the 3 sections: Sensory Systems and Learning, Neuropharmacological Aspects, and Epilepsy and Behavior Disorders. Pribram's chapter on the "New Neurology: Memory, Novelty, Thought and Choice" is a stimulating, lucid disquisition. Other chapters cover observations varying from brain amines and planaria to EEG in schizophrenia. Aside from occasional needless reiterations, the chapters are fairly well integrated. An excellent current and comprehensive survey of the normal electroencephalogram and its reactivity is presented by the editor in the introduction.

HAROLD STEVENS, M.D.

**Principles of Public Health Administration,** 4th ed. JOHN J. HANLON, M.S., M.D., M.P.H. Price, $11.50. Pp. 719, illustrated. St. Louis: Mosby, 1964.

Dr. Hanlon has produced this fourth edition of his Principles to reflect the 'great change period of human history' through which we now are passing. In the pattern of his earlier editions he reviews Public Health history, theory and practice in the United States and abroad. He tempers idealism with the realities of what is possible in chronic and communicable disease, maternal and child care, mental health, the environment, nutrition, and the myriad other functions which operate as Public Health.

The author has been aware that Public Health is a social as well as a medical science, and he places renewed emphasis on the 'public' aspects of the profession. He includes reference to such current topics as health education and behavioral science, whose public

*(Continued on page 16)*

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## Book Reviews

*(Continued from page 14)*

health role is increasing. He also acknowledges the great expansion of health and scientific information which must be forwarded to the Public Health practitioner.

In all, Dr. Hanlon has developed enough new material to warrant revising what has become a classic text and reference volume.

Murray Grant, M.D.

**Drugs of Choice 1964–1965.** Walter Modell, M.D., Editor. Price, $16.75. Pp. 1018. St. Louis: Mosby, 1964.

Professor Modell, who is Associate Professor of Pharmacology at Cornell University Medical College, is also Chairman of the Advisory Committee on New Drugs to the Food and Drug Administration. He is Attending Physician, Veterans Administration Hospital, Montrose, New York, and a member of the Executive Committee, XVII U. S. Pharmacopeia. He is also Editor of *Clinical Pharmacology and Therapeutics.*

Professor Modell has brought together in a book of slightly more than 1,000 pages the excellent contributions of some 47 physicians and professors in special fields that these men are recognized leaders in. The Editor states in the preface to his first edition of 1958–1959, "This book is a practical guide to the selection of the best drug for a particular therapeutic problem." Drugs are appearing on the market almost too quickly for any physician to learn their names, to say nothing of distinguishing which are the same drugs with different proprietary names. It is almost an insurmountable task to evaluate their relative therapeutic merits. Time may be precious for the seriously ill patient and choosing the right drug first is of the greatest importance.

This book belongs on the desk of every general practitioner as well as of most internists. The other specialty groups who do any prescribing at all could well use it.

The index is excellent, and although there are some drugs in use that are not discussed because of poor therapeutic value, all drugs are mentioned in 1 section of the index.

This book is excellent if used in conjunction with the Physicians' Desk Reference, which has quarterly supplements of drugs removed or added to the physicians' therapeutic armamentarium.

However, to date a book a year ahead seems to me valueless. Why not simply use the date of its publication and let it go at that? We know that certain drugs have to be removed from the market although in the particular writer's opinion the drug may be classified as an excellent product and so stated in the text. Certainly there are some new drugs that are possibly good drugs but are not discussed because they haven't been clinically tested long enough.

This book is a classical example of the old adage, "Be not the first by whom the new are tried, nor yet the last to lay the old aside."

Beveridge Miller, M.D.

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**Marriage Counseling in Medical Practice. A Symposium.** Edited by Ethel M. Nash, M.A., Lucie Jessner, M.D., and DeWilfred Abse, M.D. Price, $8.00. Pp. 368. Chapel Hill: University of North Carolina Press, 1964.

It is proper that this book be reviewed by an internist. Family doctors are usually first confronted with marital problems directly or camouflaged by symptoms. Our exploding problems of divorce and delinquency are only surface results of poorly adjusted marriages. Physicians are generally inadequately trained or oriented toward marriage counseling, yet their responsibility in the area of family life is considerable.

This work is a symposium clearly and lucidly written by psychiatrists, obstetricians, pediatricians, and internists concerning the many and varied aspects of married life and how a physician can cope with the many problems in a marriage. As Dr. C. Nash Herndon states in the Foreword, "An unsuccessful or 'sick' marriage can initiate a surprisingly long and complex series of reactions and interactions, with a wide range of social, psychologic, and psychosomatic effects on the married couple, their children, and even the innocent bystander."

The book is easily read and will greatly benefit any physician regardless of his specialty in understanding this complex and common situation. It not only generalizes but gives specific and practical instruction, advice, and guidance to the interested professional reader.

Paul R. Wilner, M.D.

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*Cohen, et al: J.A.M.A., 165:225, 1957.

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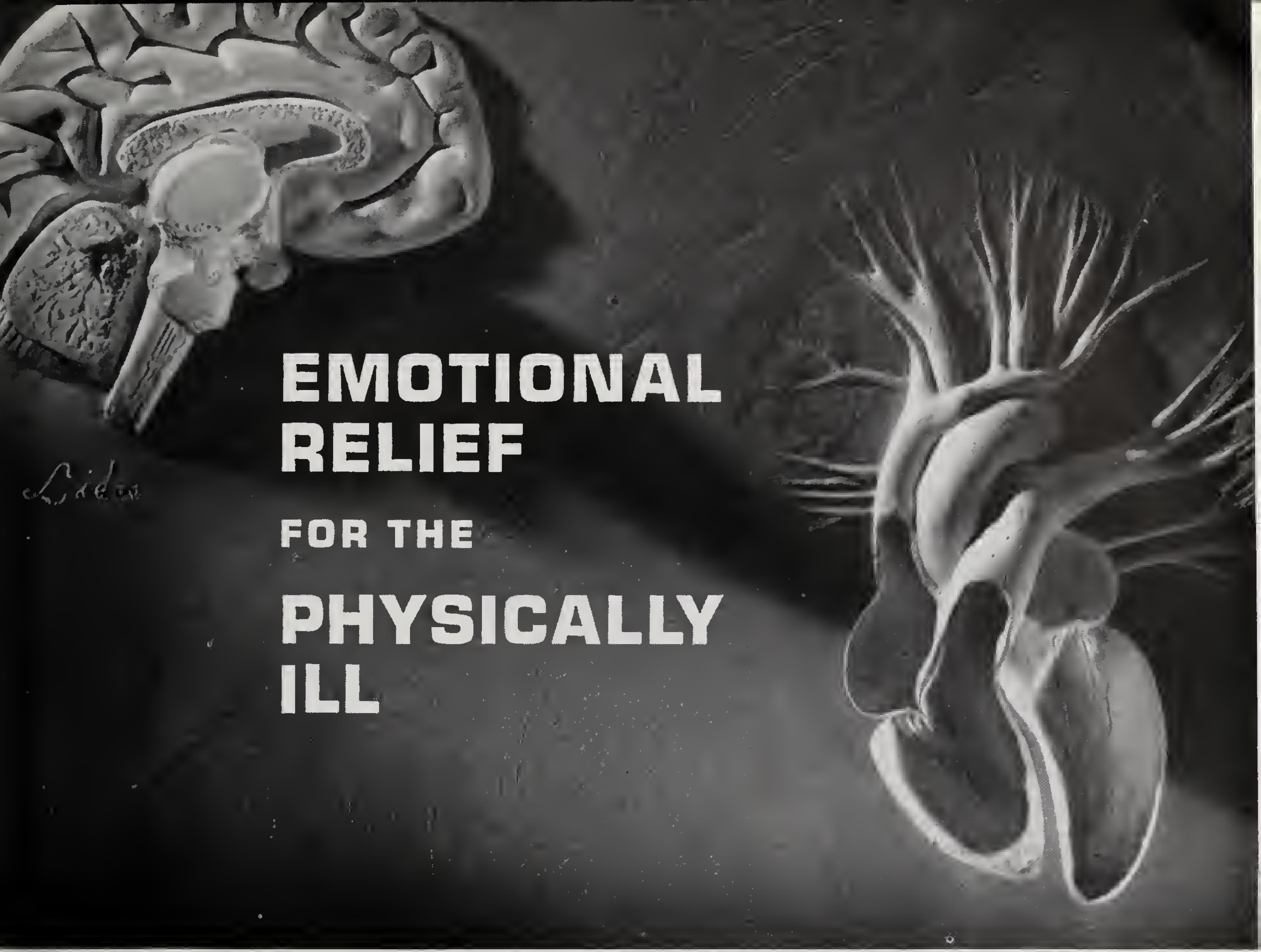

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*August 1964*

VOLUME XXXIII • NUMBER 8

## Washington Hospital Center Number

This is the sixth of a third series of special numbers of the Medical Annals, the scientific material for which is supplied by medical institutions and scientific organizations in the Washington Metropolitan Area. For the Washington Hospital Center Number the Editorial Board is indebted to Dr. Ernest A. Gould, President of the Medical Staff, who secured the papers which appear in this issue.

# Pseudotumor Cerebri

## Report of Six Cases Compared with One Case of Pseudopapilledema

HENRY J. STARR, M.D.*

*Attending in Ophthalmology, Washington (D.C.) Hospital Center*

Pseudotumor cerebri is a well-defined clinical entity consisting of increased intracranial pressure with absence of any localizing neurologic signs. The patient complains of transient obscurations of vision, diplopia, and bifrontal headache. Some patients have nausea and vertigo. They feel well otherwise. Physical examination reveals an alert patient who may demonstrate a sixth nerve palsy. The third nerve is intact. Papilledema, usually bilateral, must be present in order to establish the diagnosis. The remainder of the neurologic examination is normal. There are enlarged blind spots which correspond to the degree of papilledema and may extend to encompass the macula. Scotomata may be present. Severe postpapilledema atrophy may give rise to permanent extensive loss of visual field late in the course of the disease.

Lumbar puncture, performed if no symptoms suggestive of a posterior fossa tumor are present, reveals an elevated cerebrospinal fluid pressure, frequently 400 mm. of water or more. Characteristically, there is no increase in cells or protein in the cerebrospinal fluid. Electroencephalography may reveal generalized slowing indicative of cerebral edema but no focus of irregularity. Cerebral angiography is normal. Pneumoencephalography may reveal normal or small ventricles. Exploration of the cranial cavity reveals a tense dura and boggy edematous brain tissue.

In 1937 Dandy[1] reported 22 cases of bilateral papilledema and increased intracranial pressure without apparent cause. Subsequently many reports of similar cases have appeared in the literature. The etiology of this condition was obscure to Dandy. Other authors have suggested that thrombosis of the dural sinuses gives rise to the intracranial hypertension (Dill,[2] Walsh,[3] Symonds,[4] Ray,[5] Barnett,[6] Greer[7]). Ray reported a case in which an obstruction of the sagittal sinus at the junction between the posterior and middle third was demonstrated by sinus veinography. Subsequently a large thrombus was exposed and removed with satisfactory recovery. Recently 11 cases of benign intracranial hypertension in children who underwent surgery for mastoiditis was reported by Greer.[7] Compression of the lateral dural sinus was demonstrated at surgery in all cases. Clinically the obstruction was demonstrated by jugular compression during measurement of the cerebrospinal fluid pressure. Pressure on the ipsilateral vein caused no rise in pressure, but pressure on the contralateral vein caused a rise in pressure.

---

* At the time this paper was written the author was Resident in Ophthalmology at the Washington Hospital Center, Washington, D.C.

A second group of children with benign intracranial hypertension were reported by Greer.[8] In these cases each patient had been taking steroids which had recently been reduced or stopped. Four of the group responded rapidly to serial lumbar punctures. One patient required subtemporal decompression. The author postulated that the papilledema and increased intracranial pressure were the result of adrenal insufficiency. Four other authors have presented evidence to support this thesis (Boudin,[9] Cohn,[10] Jefferson,[11] Walsh[12]).

A third group of patients were pregnant or had had a recent pregnancy (Greer[13]). The onset of symptoms of these 8 patients occurred between the second and fifth month of pregnancy. This time corresponds to the period when the urinary corticoid excretion falls from its highest to its lowest level during pregnancy. Thus this may also represent a type of benign intracranial hypertension resulting from adrenal insufficiency.

Other authors have reported series of cases in which the patients were obese females with menstrual irregularities (McCullagh,[14] Wagener,[15] Dunn[16]).

## Report of Cases

Six patients with bilateral papilledema and increased intracranial pressure of undetermined etiology were admitted to the Washington Hospital Center in the past 4 years. Five were diagnosed and treated early and recovered without sequelae. The second patient did not come to the hospital until after considerable visual loss had been sustained as a consequence of delayed diagnosis and treatment. An additional case is presented, also a former patient of the Washington Hospital Center, in whom the diagnosis of pseudotumor cerebri was erroneously made. The cases are summarized here.

**Case 1.** A 30-year-old Negro woman, W.H.C. no. 24–93–22, was admitted to the Washington Hospital Center on September 5, 1962, with a 10-day history of frontal and temporal headaches aggregated by coughing. Six days prior to admission she had noted diplopia. She came to the Eye Clinic and was admitted to the hospital because of persistent headache and diplopia. The family history was noncontributory. The past history revealed good health except for mild allergic asthma. The patient was alert and in no distress. General physical and neurologic examinations were negative except in regard to the eyes. The visual acuity was 20/30, right eye, and 20/40, left eye. There was a left lateral rectus palsy. Funduscopic examination revealed swollen nerve heads elevated 2 diopters. Visual field examination showed moderate enlargement of both blind spots but full peripheral fields.

Lumbar puncture revealed an opening pressure of 415 mm. of water. The cerebrospinal fluid (CSF) contained 7.7 mg. per cent of protein and 4 erythrocytes per cu. mm. A right cerebral angiogram was normal. An electroencephalogram (EEG) showed no abnormality. Salt and fluids were restricted, and the patient was treated with Diuril®, 500 mg. twice daily. Edema of the discs subsided, and the patient was discharged on October 5, 1962. She was seen on February 25, 1963 with only slight blurring of the disc margins and a history of persisting mild headaches. Visual acuity was 20/30, right eye, and 20/30, left eye. The visual fields were full. No new neurologic findings were elicited.

**Case 2.** A 32-year-old Negro woman, W.H.C. no. 05–82–99, was admitted to the Washington Hospital Center on February 18, 1960 with a 2-day history of acute onset of throbbing headache localized to the left temporal region and involving the left ear and mastoid. This was preceded 1 week by a brief episode of "flu" with a temperature up to 103°F which responded to expectant treatment. On the morning of admission the patient was able to perceive only bright lights in both eyes. The family history was not contributory. The past history was significant only in that she had had a left ear infection several years before requiring puncture of the eardrum.

Physical examination including a complete neurologic one was negative except for the eye findings. Vision was light perception only in both eyes. Both pupils were dilated and reacted weakly to light directly and consensually. Funduscopic examination revealed marked swelling of both nerve heads with 5 diopters of elevation on the right and 6 diopters of elevation on the left. A few hemorrhages were scattered around the papillae. No peripheral retinopathy was seen.

On February 19, 1960 a lumbar puncture was performed, with an opening pressure of 340 mm. of water. The fluid contained 10 mg. per cent protein, 8 erythrocytes per cu. mm. and 73 mg. per cent sugar. CSF serologic examination was negative. Right and left cerebral arteriograms showed no abnormality. Pneumoencephalogram with the injection of 30 c.c. of air showed moderate dilatation of the lateral ventricles but was otherwise not remarkable. An EEG was normal. Seven days after admission after multiple lumbar punctures and fluid and salt restriction the papilledema was reduced to 1 diopter on the right and 2 diopters on the left. The visual acuity improved to 20/70, right eye, and counting fingers, left eye. On

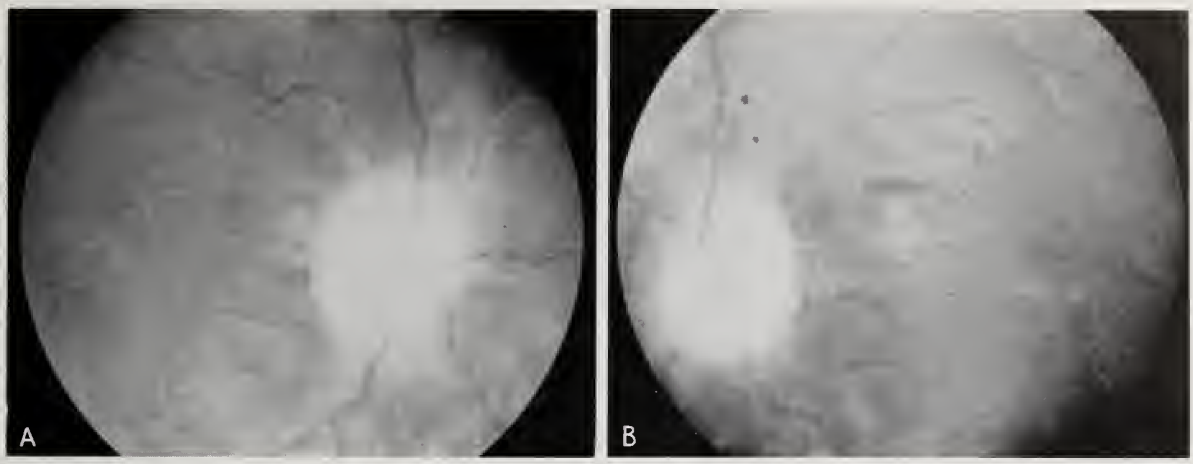

**FIG. 1. Case 2. (A) Right eye, showing postpapilledema optic atrophy. (B) Left eye, showing postpapilledema atrophy.**

March 1, 1960 the CSF pressure was 180 mm. of water, and the patient was discharged.

She was followed in the Eye Clinic where visual acuity improved to 20/20, right eye, and 20/50, left eye. Only a small central visual field including the macula and small temporal island remained in each eye. The discs developed moderate pallor, and the arterioles showed definite constriction in both eyes. On December 4, 1961, 20 months after discharge, visual acuity and visual fields remained unchanged. The optic discs showed moderate to marked pallor and persistence of retinal arteriolar constriction (figure 1). No neurologic signs were evident.

**Case 3.** A 19-year-old Caucasian woman, W.H.C. no. 29–00–00, was admitted on June 27, 1963 for evaluation of a 2-week history of headache and diplopia. There was no history of menstrual irregularity or of recent ear infections. The patient had been on no medication prior to admission. No extraocular muscle palsy was recorded on physical examination. Two diopters of papilledema were present in both eyes. The blood pressure was 150/100. The remainder of the physical examination was negative. Brain scan, EEG, cerebral angiogram, and skull films were all negative. Pneumoencephalogram revealed small ventricles in normal position. CSF protein was 10.5 mg. per cent, and there were no cells. The patient was discharged with a presumptive diagnosis of pseudotumor cerebri.

**Case 4.** A 53-year-old Negro woman, W.H.C. no. 29–36–90, was admitted on July 24, 1963 complaining of headaches, blurred vision, and dizziness of 6 months' duration. Neurologic examination was negative except for 2 diopters of papilledema in both eyes. Enlarged blind spots were demonstrated on visual field examination. Lumbar puncture revealed an opening pressure of 410 mm. of water, and the CSF contained 48 mg. per cent protein and 18 lymphocytes per cu. mm. Skull films showed thinning of the posterior clinoids suggesting increased intracranial pressure. An EEG was normal. The patient refused pneumoencephalography and was discharged on Diamox® and salt and water restriction. She was seen on December 17, 1963 with persistently elevated nerve heads and enlarged blind spots. She no longer complained of headache.

**Case 5.** A 35-year-old Negro woman, W.H.C. no. 05–46–18, was admitted on August 30, 1963 with symptoms of bifrontal headache of 2 weeks' duration. She had noted a "floater" in front of the left eye for 2 days. She had been treated for acute attacks of bronchial asthma over the past 4 years but never with steroids. She had also been treated for essential hypertension and diabetes mellitus. Physical examination revealed an alert obese female weighing 228 pounds, with bilateral papilledema of 2 diopters (figure 2). There were flame hemorrhages around both discs. Neurologic examination was negative. Visual field examination demonstrated enlarged blind spots in both eyes. Lumbar puncture yielded an opening pressure of 330 mm. of water, and the CSF contained 36.6 mg. per cent protein. An EEG was normal. The patient was treated with a low-sodium low-calorie diet and Diuril, 500 mg. twice daily. At discharge on September 19, 1963 there was some diminution of the papilledema. The patient was asymptomatic on February 28, 1964 with no papilledema on the right and blurring of the nasal disc margin only on the left.

**Case 6.** A 23-year-old Negro woman, W.H.C. no. 30–41–03, was admitted on October 10, 1963 with a 4-month history of headache which increased in intensity 2 weeks prior to admission. She had had bilateral decrease in vision 1 week prior to admission. Visual acuity was 20/200, right eye, and 20/160 left eye. Fundus examination revealed bilateral choked discs of 4 diopters with hemorrhages around both nerve heads. Visual fields showed large centrocecal scotomata in

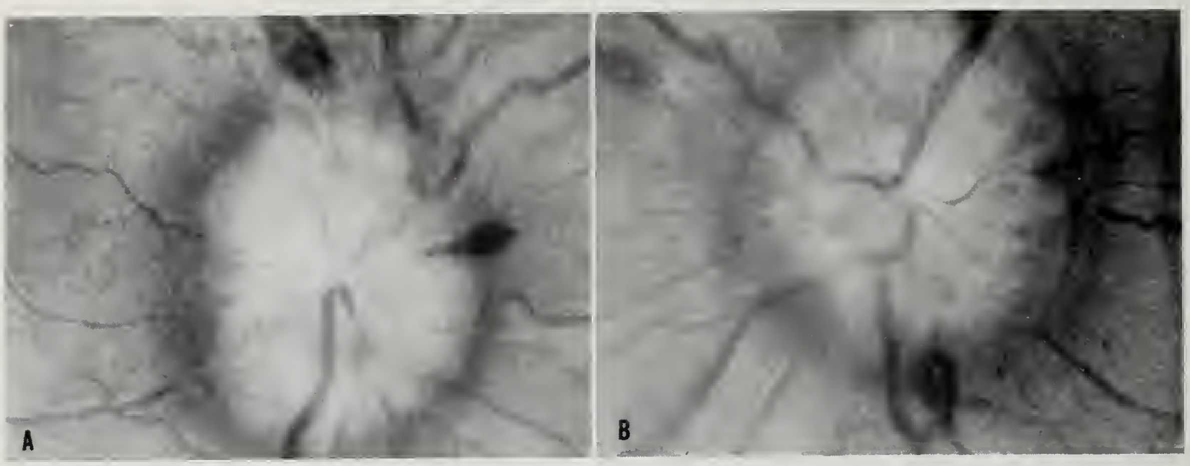

**FIG. 2. Case 5. (A) Right eye, showing papilledema with flame-shaped hemorrhages. (B) Left eye showing papilledema with hemorrhages.**

both eyes with a 20 mm. white test object. Lumbar puncture revealed an opening pressure of 290 mm. of water, and the CSF contained 12 mg. per cent of protein and 2 lymphocytes per cu. mm. Skull films and right cerebral angiograms were negative. The patient was treated with Diamox, 500 mg. daily, and Medrol®, 16 mg. daily. The papilledema reduced to 2 diopters on discharge, October 27, 1963, with subjective improvement of visual acuity.

**Case 7.** A 36-year-old Negro woman, W.H.C. no. 25–55–08, was admitted on October 31, 1962 complaining of headaches of 6 weeks' duration somewhat relieved by aspirin. Physical examination revealed an alert, slightly obese female with a completely negative neurologic examination except for blurred disc margins and slight elevation of the nerve heads. There was questionable hyperemia of the nerve heads but no hemorrhages or exudates (see figure 3). Visual field examination demonstrated slight enlargement of the blind spots in both eyes. Four ophthalmologists, 1 neurosurgeon, and 2 internists agreed that bilateral papilledema was present. One ophthalmologist thought that the discs were not abnormal.

Laboratory examinations, including an EEG, skull films, pneumoencephalogram, right cerebral arteriogram, and spinal fluid analysis were all normal. The patient was treated with Diuril, 500 mg. b.i.d., while in the hospital. She was discharged on November 14, 1962 with apparent improvement of the nerve heads.

She was readmitted on October 21, 1963 complaining of dizziness and mild headache which had persisted since her previous admission. Physical examination was negative except for blurred disc margins. Visual field examination showed full fields with no enlargement of the blind spots. Lumbar puncture revealed an opening pressure of 235 mm. $H_2O$, and the CSF contained 17 mg. per cent protein but no cells. A right cerebral angiogram showed no change from the previous examination.

The patient was next seen in the Eye Clinic on February 6, 1964, still complaining of headache. At this time the discs appeared unchanged. Visual fields were full and the diagnosis of structurally full discs was entertained.

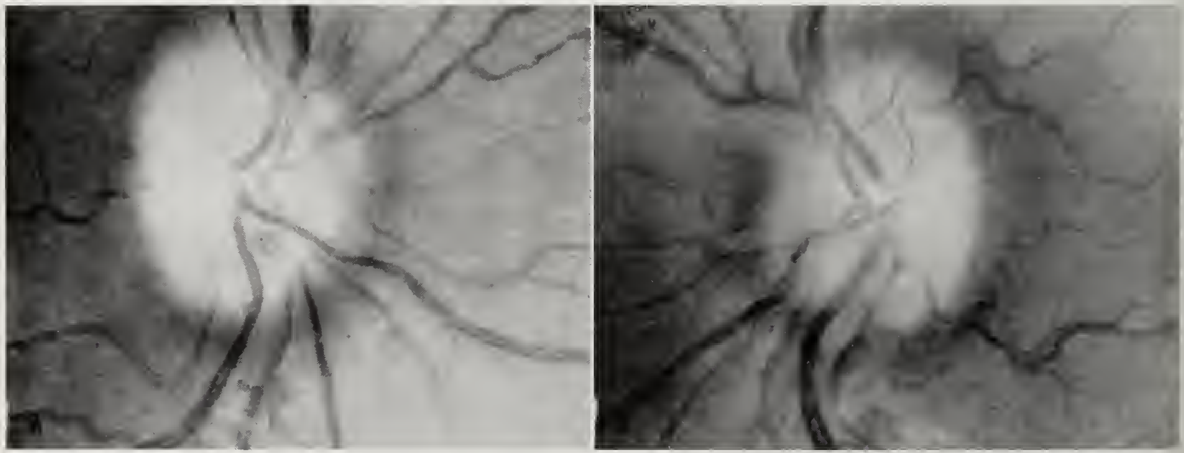

**FIG. 3. Case 7. (A) Right eye, showing blurred disc margins, especially nasally, without dilated vessels. (B) Left eye, showing all large vessels leaving the disc nasally and then coursing temporally.**

## Discussion

Table 1 summarizes the cases presented. The first 6 are almost monotonous in the repetitiousness of history, physical examination, and laboratory findings. Even the seventh case is similar to the others in these respects. The lack of neurologic signs and symptoms other than those related to increased intracranial pressure should immediately alert the examiner to the likelihood of pseudotumor.

**TABLE 1: Summary of Case Reports**

| Case No. | Age | Race and Sex | Complaint | Papilledema in Diopters | | Initial Visual Acuity | | CSF Pressure in mm. $H_2O$ | Habitus | Treatment | Final Visual Acuity | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | O.D. | O.S. | O.D. | O.S. | | | | O.D. | O.S. |
| 1 | 30 | NF | Headache; diplopia | 2D | 2D | 20/30 | 20/40 | 415 | Obese | Salt and water restriction; Diuril | 20/30 | 20/30 |
| 2 | 32 | NF | Headache; loss of vision | 5D | 6D | L.P. | L.P. | 340 | Slightly obese | Multiple lumbar punctures | 20/20 | 20/50 |
| 3 | 19 | WF | Headache; diplopia | 2D | 2D | ? | ? | ? | Obese | — | ? | ? |
| 4 | 53 | NF | Headache; blurred vision | 2D | 2D | 20/20 | 20/30 | 410 | Obese | Salt and water restriction; Diamox | 20/20 | 20/30 |
| 5 | 35 | NF | Headache | 2D | 2D | 20/30 | 20/30 | 330 | Obese | Salt restriction; Diuril | 20/30 | 20/30 |
| 6 | 23 | NF | Headache; decreased vision | 4D | 4D | 20/200 | 20/160 | 290 | Slightly obese | Diamox; Medrol | ? | ? |
| 7 | 36 | NF | Headache | 1D | 1D | 20/20 | 20/20 | 235 | Slightly obese | Diuril | 20/20 | 20/20 |

Several authors have emphasized that in the differential diagnosis the patient with pseudotumor cerebri is remarkably alert when contrasted with the patient who characteristically demonstrates a clouded sensorium when the elevated intracranial pressure is due to brain tumor, hypertensive encephalopathy, lead encephalopathy, acute glomerulonephritis, or head trauma (Smith[17]). Our cases bear this out.

In Dandy's paper of 1937[1] 4 criteria were required to make the diagnosis of pseudotumor cerebri: (1) signs and symptoms of increased intracranial pressure, (2) lack of focal neurologic signs, (3) a clear cerebrospinal fluid under increased pressure, and (4) normal ventriculograms. He thus established the necessity for performing ventriculography on patients even if they were strongly suspected of having pseudotumor cerebri.

The history and eye findings were so characteristic in our cases that in every one the diagnosis was strongly suspected prior to complete neurologic evaluation. The question arises as to whether complete neurosurgical evaluation including angiography and ventriculography is necessary in such typical cases. With characteristic findings it may be argued that in the absence of any localizing neurologic signs or symptoms the patient may be followed closely with conservative treatment for pseudotumor cerebri. However, 2 diseases may be overlooked if this course is followed. Arachnoiditis of the posterior fossa can only be differentiated from pseudotumor cerebri by the presence of dilated ventricles demonstrated by ventriculography or arteriography (Raimondo[18]). Walsh[19] relates a case in which a patient with unresolving pseudotumor cerebri finally came to surgical exploration. A meningioma of the posterior fossa was found invading the dural sinuses.

Authors disagree as to management of the patient with pseudotumor cerebri. The most serious complication of this disease is visual loss secondary to postpapilledema atrophy as illustrated by our case 2. All agree that intracranial pressure must be reduced before the onset of postpapilledema atrophy. Decompression after this point is reached may result in precipitous loss of vision (Huber[20]). The Wilmer Institute group recommends subtemporal decompression if Holmes' criteria for decompression in papilledema are met (Smith[17]). These are: (1) rapid onset and progression of papilledema, (2) papilledema over 5 diopters, (3) transient obscurations of vision,

(4) loss of vision and fields, and (5) arteriolar narrowing (Holmes[21]). In contrast, the Mayo Clinic group reports good results in the conservative treatment of pseudotumor cerebri by restricting water and salt intake (Smith,[17] discussion; Dunn[16]). In all of our cases conservative treatment was used. Five of our patients responded to salt and water restriction. In the second case treatment was instituted too late to be beneficial. Recently corticosteroids have been utilized to an increasing extent by neurosurgeons to reduce postcraniotomy cerebral edema. They have also utilized steroids in the treatment of pseudotumor cerebri with good results (Rizzoli[22]).

The second case is unusual in that initially the patient was thought to have bilateral papillitis because of the history of precipitous visual loss which is characteristic of papillitis rather than papilledema. However, the bilateral involvement and the marked elevation of the nerve heads pointed to the diagnosis of papilledema with postpapilledema atrophy. This case emphasizes the importance of early diagnosis and treatment of pseudotumor. Although generally a benign, self-limited course is the rule, postpapilledema atrophy (figure 1) with severe permanent visual loss is a possible sequela. Since symptoms may be minimal it is urged that all patients with complaints of chronic headache be examined with an ophthalmoscope. Patients such as the 6 presented here might be spared the risk of ventriculography and arteriography when such a typical history and findings are present. If papilledema and increased intracranial pressure persist in spite of conservative treatment further investigation should be carried out.

The seventh case is presented to emphasize the importance of careful examination of the nerve heads. In retrospect the diagnosis of pseudopapilledema should have been made on the initial visit. The history of headache was the misleading clue, and this history was not elicited until after the fundus was examined. Although this patient demonstrated no drüsen of the disc and no hyperopia, close examination of the discs revealed early branching of the retinal vessels and a tendency for all of the large branches to course nasally before swinging toward the temporal retina (figure 3). These are typical findings in pseudopapilledema (Glew[23]). A cautious lumbar puncture initially could have prevented unnecessary hospitalization and examining procedures.

## Summary

Six cases of pseudotumor cerebri have been presented. Two cases had loss of vision as the most prominent symptom. Prompt conservative treatment with salt and water restriction and diuretics effected a cure in all but the far-advanced case. Funduscopic examination is recommended in any patient complaining of headache or visual disturbance. Conservative diagnostic techniques are recommended, and once the diagnosis is made medical treatment should be attempted before surgical decompression is done. The entity of pseudopapilledema should not be overlooked in establishing a diagnosis of choked disc.

1746 K Street, N.W.
Washington, D.C. 20006

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# Eosinophilic Infiltration of the Gastrointestinal Tract

**JAMES M. TENNEY, M.D.**
*Resident in Pathology, Washington (D.C.) Hospital Center*
**MILTON L. GOLDMAN, M.D., F.A.C.S.**
*Senior Attending in Surgery, Washington Hospital Center*
**LOUIS ROSS, M.D.**
*Senior Attending in Medicine, Washington Hospital Center*
**LEON GERBER, M.D., F.A.C.S.**
*Senior Attending in Surgery, Washington Hospital Center*

EOSINOPHILIC INFILTRATION of the stomach was first reported by Kaijser[1] in 1937. This was a 53-year-old man with a strong personal and familial allergic history and a peripheral eosinophilia of 26 per cent. He developed symptoms of pyloric obstruction, and subsequently a subtotal gastric resection was performed. The resected stomach showed edema and dense infiltration with eosinophils in the pre-pyloric portion.

Vanek[2] and others described 6 cases of a "gastric submucosal granuloma with eosinophilic infiltration." Each case had a localized polyp, sessile or pedunculated, in the region of the pyloric antrum, associated with symptoms of partial obstruction. Since that time there have been many other reports of both localized and diffuse eosinophilic infiltrations of the stomach and other portions of the gastrointestinal tract. In 1961 Ureles et al[3] made a comprehensive review of the literature and proposed a classification (table 1) which will be adopted in this report. There have since been isolated reports of eosinophilic infiltrations in various locations in the gastrointestinal tract.[4-7]

**TABLE 1: Classification of Idiopathic Eosinophilic Infiltrations of the Gastrointestinal Tract[3]**

CLASS I. Diffuse eosinophilic gastroenteritis
  Group A. Polyenteric
  Group B. Mono-enteric
  Group C. Regional
CLASS II. Circumscribed eosinophilic-infiltrated granuloma
  Group A. Regional
  Group B. Polypoid

The purpose of this report is to present 2 cases of eosinophilic gastroenteritis.

## Report of Cases

**Case 1.** A 50-year-old white woman gave a history of "weak spells" and occasional abdominal discomfort for a period of 3 years. She had required blood transfusions on 3 occasions in other hospitals. One year prior to admission an upper gastrointestinal X-ray examination showed "annular duodenal thickening." There was no history of allergy. The patient was admitted to another hospital following an episode of weakness and sweating after a large meal. This was associated with nausea and abdominal discomfort and was relieved by vomiting. An electrocardiogram taken at this time was interpreted as showing a posterior-wall myocardial infarct. During convalescence an upper gastrointestinal X-ray examination showed duodenal obstruction with an "irregularity" at the pyloric antrum. Serial eosinophil percentages during the 2-month convalescent period were as follows: 4, 59, 65, 52, 53, 48, 51, 43, and 2. Gastric analysis showed 15 units of free hydrochloric acid. The patient was transferred to the Washington Hospital Center for surgery.

The blood pressure was 120/80 and the pulse rate 80 per minute. The patient was a well-developed, fairly well-nourished white woman in no acute distress. Physical examination was essentially negative. A preoperative upper gastrointestinal X-ray examination showed "persistent narrowing of the pyloric antrum. This narrowing begins gradually and extends to the pylorus." Gastric analysis showed free hydrochloric acid 3° to 7°, total acid 7° to 10°. The white blood cells numbered 7,142 per cu. mm., with 57 per cent neutrophils, 25 per cent lymphocytes, 16 per cent eosinophils, and 2 per cent monocytes. The hemoglobin

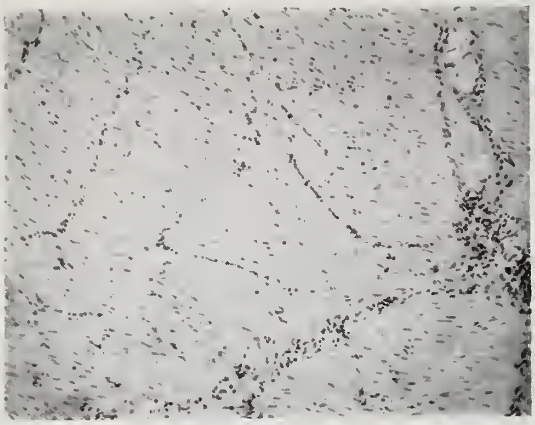

**FIG. 1. Portion of muscularis mucosae showing great edema and thickening.**

was 12.5 Gm. and the hematocrit 38.5 per cent. The total eosinophil count was 1,354 per cu. mm. The bone marrow examination showed hyperplasia of the marrow, all elements; mild normochromic anemia, cause undetermined; and eosinophilia of the marrow and peripheral blood, cause undetermined. Urinalysis was normal except for 2.5 mg. per cent albumin. Stool examination showed a trace of occult blood.

At surgery an obstructing lesion of the distal stomach was resected, and an anterior Hofmeister-Billroth II gastrojejunostomy was performed. The postoperative course was uneventful.

The surgical specimen consisted of a portion of stomach measuring 16 cm. along the greater curvature and 10 cm. along the lesser curvature. The serosal surface was smooth and glistening. The mucosa was pinkish-tan and thrown into the usual folds except in the prepyloric area where it was smooth. Beginning 6 cm. from the distal line of resection the stomach wall increased in thickness from 1 cm. to 2.7 cm. at the pylorus. The thickening appeared confined to the muscularis, with the mucosa maintaining its normal thickness. Microscopically there were broad, edematous, thickened bands of muscularis which were densely infiltrated by sheets of eosinophils. There was no infiltration of either the submucosa or the mucosa (figure 1).

**Case 2.** A 58-year-old Negress complained of epigastric pain of 2 days' duration associated with vomiting. Any attempt to take food or fluid resulted in emesis. She gave no history of previous episodes except that 6 years prior to admission she had had a "peptic ulcer," with remission of symptoms following medical ulcer therapy. There was no history of fatty food intolerance, hematemesis, melena, or allergy.

The blood pressure was 130/60 and the pulse rate 90 per minute. Physical examination was not remarkable except for the abdomen, which was slightly distended and moderately tender to superficial and deep palpation in the epigastrium. No masses were felt. An upper gastrointestinal X-ray examination showed a small hiatal hernia. No barium passed beyond the stomach, and there was practically 100 per cent retention in 6 hours. The white blood cells numbered 10,200, with 50 per cent neutrophils, 25 per cent eosinophils, 1 per cent basophils, 1 per cent monocytes, and 23 per cent lymphocytes. The hemoglobin was 12.3 Gm. The urine contained 10 mg. per cent albumin and many pus cells.

A Billroth I subtotal gastric resection was performed, with removal of the distal two-thirds of the stomach and the first 2 cm. of duodenum. The postoperative course was good.

The surgical specimen consisted of a portion of stomach measuring 28 cm. along the greater curvature and 15 cm. along the lesser curvature. The serosa was smooth and glistening. The mucosa was thrown into the usual rugal folds. The muscular layer of the wall was distinctly firmer than normal with actual induration at the pylorus. The average thickness at the fundic area was 0.5 cm. There was gradual thickening up to 1.8 cm. in the pyloric region. Microscopically there was marked muscle hypertrophy and prominent interstitial infiltration by eosinophils within the connective tissue between the muscle bundles, extending the eosinophils in places into the muscle bundles themselves. Submucosal and mucosal infiltrations were absent (figure 2).

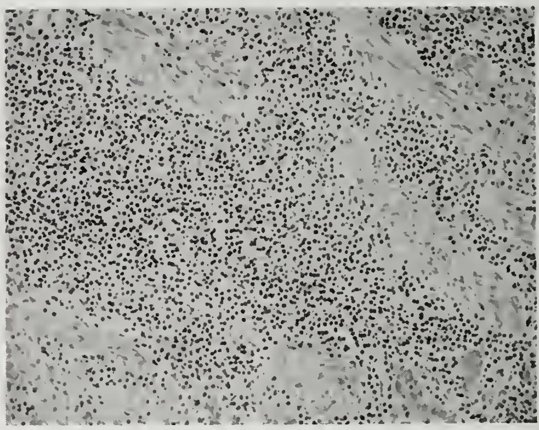

**FIG. 2. Portion of muscularis mucosae showing dense infiltration with eosinophils.**

## Discussion

Ureles et al[3] classified various eosinophilic infiltrations on the basis of extent as being either diffuse or circumscribed. The former were subdivided into polyenteric, mono-enteric, and regional. The circumscribed type was either regional or polypoid. The polypoid variety is the well-known inflammatory gastric polyp. The diffuse variety, of which they collected 25 cases, appears predominantly in the second to fifth decades. Eighty per cent had a significant history of gastrointestinal complaints over a period of several years. Pyloric obstruction was an almost constant finding. Almost one-half of the cases had a history of allergy, and practically all had a marked peripheral eosinophilia.

Our 2 cases seem to fit best into the "diffuse eosinophilic gastroenteritis" class, in the "regional" group. Neither patient had a history of allergy. Like the others in this category, both patients had historical and X-ray evidence of pyloric obstruction. Good results were obtained in both patients following subtotal gastrectomy. The gross and microscopic findings are consistent with those described by others. Neither case had submucosal or mucosal involvement. Vascular lesions described by McCune et al[8] were not present.

The importance of recognition of this lesion preoperatively or at surgery is evident since the X-ray and gross findings closely mimic a diffuse form of gastric carcinoma. In the diffuse type of eosinophilic gastroenteritis surgical intervention is necessary in instances of unremitting obstruction or bleeding, although ACTH therapy may produce remissions.[5]

## Summary

Two cases of eosinophilic gastroenteritis have been presented. Both patients had pyloric obstruction and benefited from subtotal gastrectomy. Neither gave a history of allergy. An attempt has been made to classify them.

Acknowledgment: The authors are indebted to Dr. John H. Lyons, deceased, for the use of case 2.

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# New Peace Corps Policy for Married Physicians

A NEW PEACE CORPS POLICY concerning married doctors who wish to volunteer for overseas assignments has been announced by Director Sargent Shriver. They will be allowed to take their families with them to overseas posts. In the past volunteer physicians have been subject to the same rules governing all other Peace Corps volunteers: no children allowed, and wives accepted only if they are qualified and willing to serve in the same project.

Under the new policy wives of physicians will not be required to serve as volunteers although they must complete a Peace Corps application for information purposes. Doctors with children can be accepted and adequate family living allowances will be provided.

The new policy was adopted because requests for doctors continued to pour in from countries in Africa, Asia and Latin America. Some of the countries calling for Peace Corps doctors to help with health projects are Togo, Brazil, Venezuela, Tanganyika, Afghanistan, Niger, Malaysia, Panama, Sierra Leone and Nyasaland.

General practitioners, surgeons, pediatricians, gynecologists and all types of specialists are needed. Specialists will be assigned to projects where they can work in their specific fields and gain professional experience. In addition to treating patients, Peace Corps doctors devote a substantial amount of their time to training local medical staffs.

Applicants for these medical and health programs do not have to be proficient in the language of these countries when they apply. Volunteers receive intensive classroom and laboratory work in the required languages, and training is given by the most modern, concentrated methods. Detailed information about specific programs and Volunteer Questionnaires may be obtained from the Office of Public Affairs, Peace Corps, Washington, D. C. 20525.

# Percutaneous Retrograde Noncatheter Brachial Angiography*

NICHOLAS P. D. SMYTH, M.D.
GUENTER J. AUGUSTIN, M.D.
NORMAN H. HORWITZ, M.D.
W. DABNEY JARMAN, M.D., F.A.C.S.
JAMES M. BACOS, M.D.

*Washington*

Contrast visualization of the aorta and its major branches has been available by a variety of methods for many years. In general these methods have relied on direct puncture of the artery to be studied[1, 2] or of an artery close to the site of the disease,[3] by selective angiography by catheter,[4] or by cardio-angiography.[5, 6]

Recently a new technique has been developed which is of interest because of its remarkable simplicity and great versatility. This is the percutaneous retrograde noncatheter brachial angiographic technique in which either the right or left brachial artery is used.[7, 8, 9] In general it has been found that by this technique good visualization of the right subclavian, vertebral, common carotid, and innominate arteries is possible by the right brachial route and good visualization of the left subclavian, left vertebral artery, thoracic and abdominal aorta and branches by the left brachial route.

We have used this technique in 50 patients with increasing success in visualizing the extracranial and intracranial cerebral arteries, the thoracic and abdominal aorta, and the renal arteries.

## Description of Method

Under local or general anesthesia, or in some cases without anesthesia, a 17-gauge needle of the Grino or Karras type† is inserted into the brachial artery at a point about 1 cm. above a line joining the external and internal epicondyles of the humerus. With either a technique in which both walls of the artery are initially punctured or, preferably, one in which the anterior wall alone is punctured, the needle is finally positioned at a point where a good pulsatile flow is obtained, and is then advanced up the artery for a distance of about 3 to 4 cm. and fastened in place with adhesive tape. The injection is then made of 20 to 40 cu. cm. of 50 per cent Hypaque‡ for right brachial angiography and 20 to 60 cu. cm. of 50 per cent Hypaque for left brachial angiography depending on the vessel to be visualized. The dye is injected under pressure by means of a power injector.§ The pressure used varies from 200 to 400 pounds per square inch depending on the type of study and the patient's blood pressure. A variable number of roentgenograms are taken with an automatic seriograph.|| Both the number of roentgenograms and the interval between exposures can be varied to suit the type of angiography.

## Cerebral Angiography

As a result of recent advances in vascular surgery and increasing awareness of the significance of extracranial arterial occlusive disease, complete visualization of the entire extracranial course of both carotid and vertebral arteries has become essential in many cases. Previous techniques of multiple single-vessel injections are unsatisfactory for an extracranial angiographic survey because of the danger of damage to an already diseased vessel, and because of the difficulty in visualizing the entire course of the carotid and vertebral arteries by these techniques.

Right brachial angiography allows the visualization of the right carotid and right vertebral arteries throughout their course. Left brachial angiography allows the visualization of the left

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* From the Departments of Surgery (Dr. Smyth), Radiology (Dr. Augustin), Neurosurgery (Dr. Horwitz), Urology (Dr. Jarman), and Medicine (Dr. Bacos), Washington Hospital Center, Washington, D.C.

† Becton, Dickinson and Company, Rutherford, New Jersey.

‡ A product of Winthrop Laboratories, New York, New York.

§ Cordis Corporation, Miami, Florida.

|| Sanchez-Perez Automatic Seriograph, Litton Industries, College Park, Maryland.

vertebral artery throughout its course. Direct puncture or other technique is still required for visualization of the left carotid artery, although occasionally we have found that satisfactory opacification of the left carotid artery can be obtained by right brachial angiography (figure 1).

In figure 2 examples are shown of extracranial angiography. In figure 3 examples of predominantly intracranial angiography are shown.

### Thoracic Aortography

Contrast visualization of the thoracic aorta in the diagnosis of coarctation, patent ductus arteriosus, and aneurysmal disease is well established with either the intravenous cardio-angiographic technique[6] or the Seldinger catheter technique.[4]

In the presence of an emergency such as is presented by aortic dissection there is need for a quick simple method of visualizing the thoracic aorta to aid in the differential diagnosis of aortic dissection and myocardial infarction. In addition to making the diagnosis, contrast visualization of the thoracic aorta is important in showing the extent of the dissection. It is particularly important for the surgeon to know whether the dissection originates at the origin of the left subclavian artery and can therefore be dealt with by left thoracotomy with the use of hypothermia or atriofemoral by-pass, or whether the dissection involves the ascending aorta and aortic root

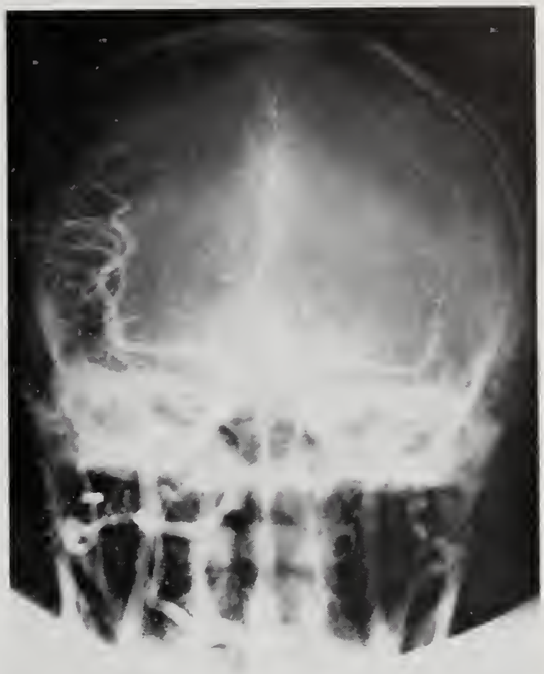

FIG. 1. Right brachial angiogram shows excellent filling of both right and left carotid and vertebral arteries.

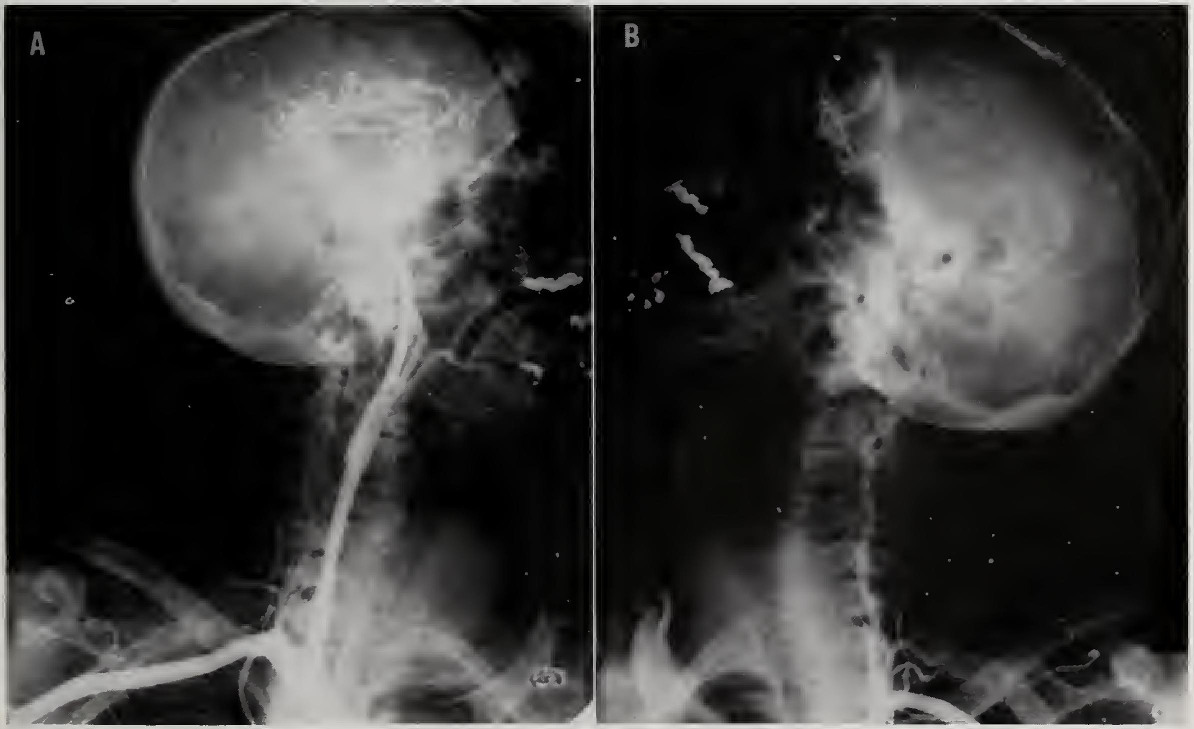

FIG. 2. (A) Extensive occlusive disease of right vertebral artery. (B) In same patient a partial occlusion of left vertebral artery at its origin.

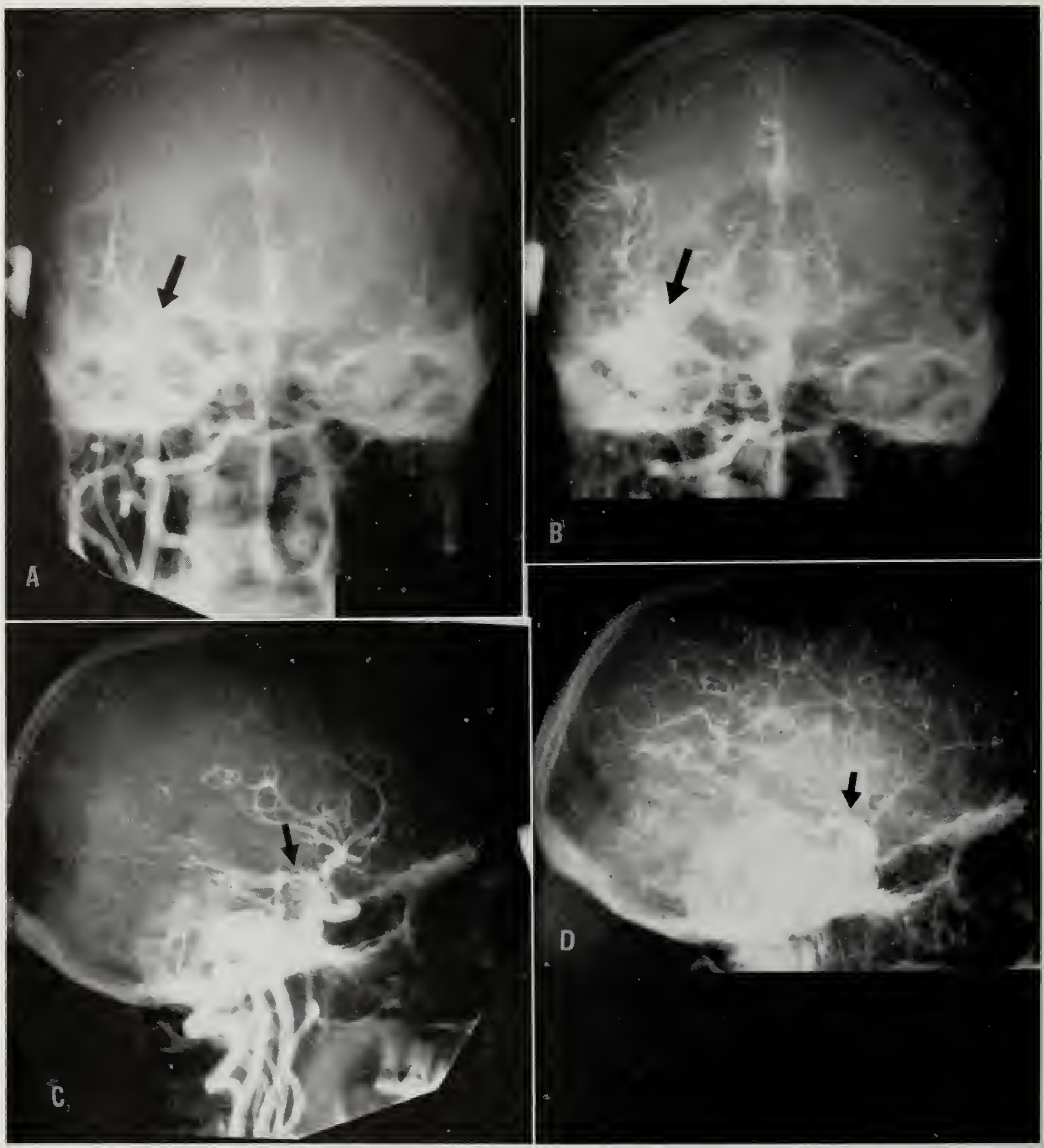

**FIG. 3.** A and C, anteroposterior and lateral views of extracranial phase; B and D, same views of intracranial phase of right brachial cerebral angiogram. Arrow in each view points to an arteriovenous fistula.

requiring a right thoracotomy or sternum-splitting incision for an approach to the ascending aorta with the use of a cardiopulmonary by-pass for repair. In figure 4 are shown 3 phases in the visualization of the thoracic aorta by right brachial angiography in a 43-year-old woman. The roentgenograms demonstrate dissection of the ascending aorta, arch, and descending aorta at least to the level of the diaphragm. In figure 4-C a marked pseudocoarctation of the inner lumen is seen in the upper descending thoracic aorta. This finding explained the fact that this patient's blood pressure continued to rise while she was being studied in the Emergency Room. A buckled innominate artery is also demonstrated.

In figure 5 a right brachial angiogram shows aortic dissection in a 74-year-old man beginning at the level of the left subclavian artery and extending at least to the diaphragm. There is no evidence of involvement of the arch or ascending aorta and no evidence of occlusion of any major or minor branch of the aorta by the dissection.

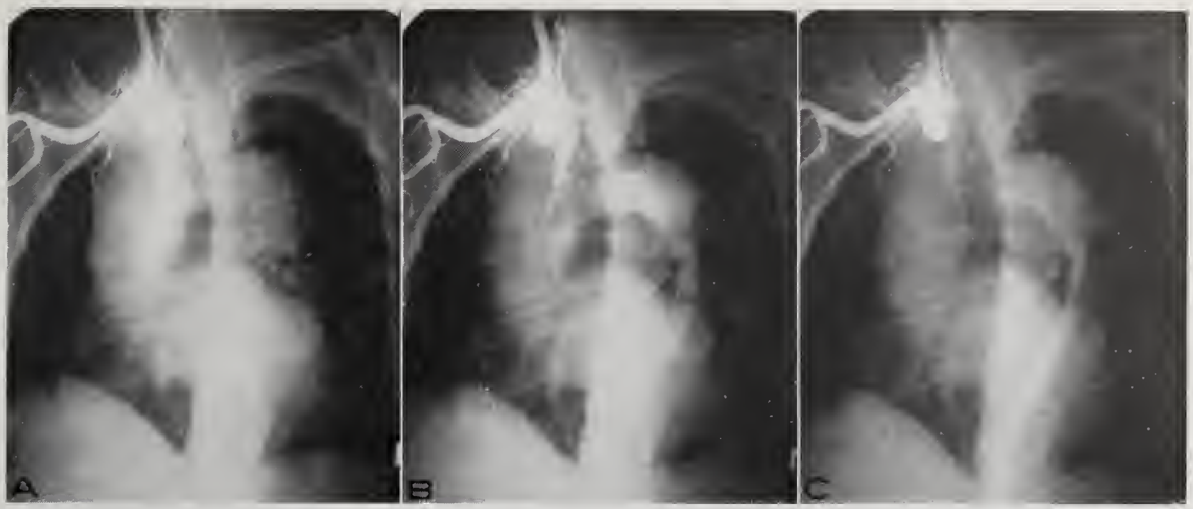

FIG. 4. Three phases in visualization of thoracic aorta by right brachial angiography.

## Abdominal Aortography

Abdominal aortography can be very satisfactorily performed by direct percutaneous puncture of the abdominal aorta.[2] The technique is simple, and complications are few. However, a small number of serious complications have stimulated efforts to find a safer method. Visualization of the abdominal aorta by modification of the cardio-angiographic technique[5, 6] has been advocated, but the contrast in most cases is inadequate. Visualization of the abdominal aorta by the Seldinger technique with the use of one of the femoral arteries is satisfactory but may be contraindicated in the presence of aorto-iliac occlusive or aneurysmal disease. Left brachial angiography offers a safe method.

In our experience the presence of occlusive disease may alter the hemodynamics so that timing of the roentgenographic exposures becomes of great importance. In our early experience we found it more difficult to obtain good contrast under these circumstances than under conditions

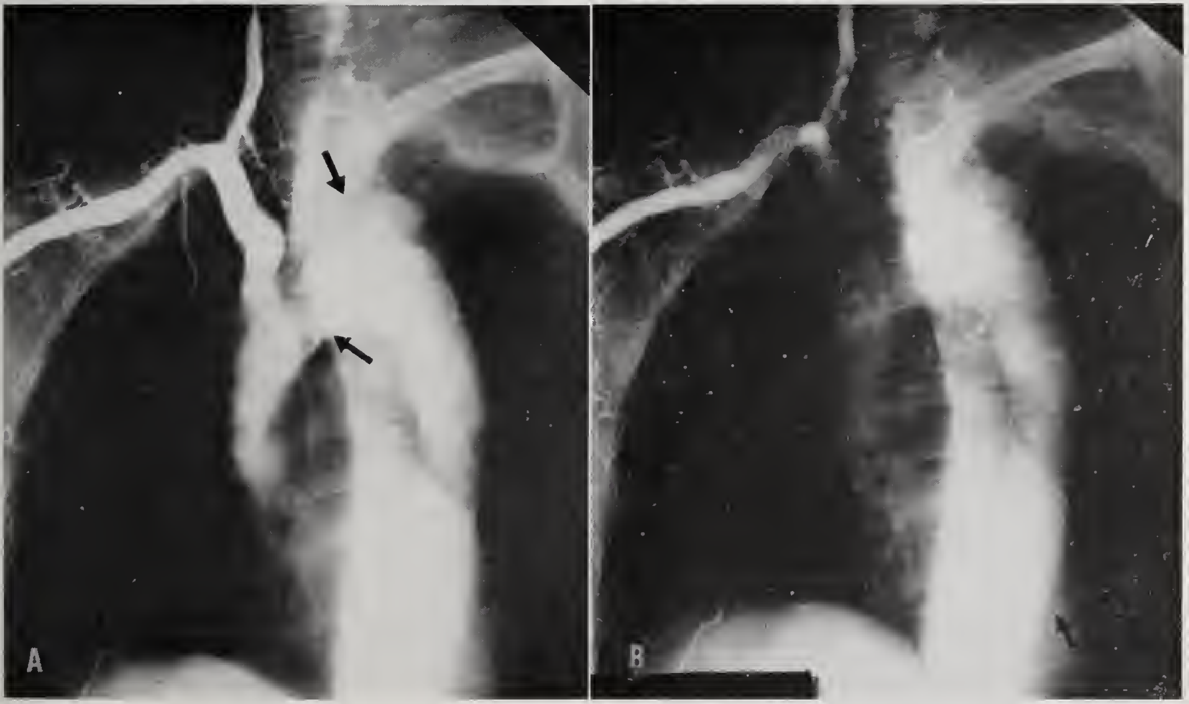

FIG. 5. (A) Arrows indicate that dissection begins at level of origin of left subclavian artery. Arch is normal. (B) Later roentgenogram. Arrow points to the double contour at level of diaphragm indicating that dissection extends at least that far.

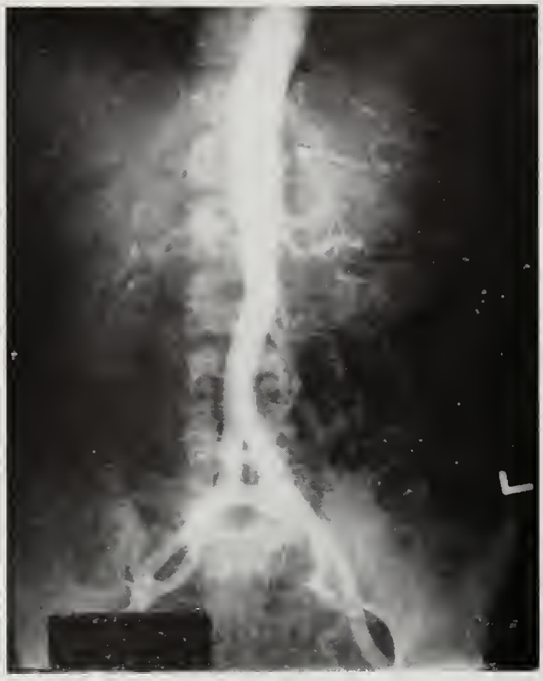

FIG. 6. Left brachial abdominal aortogram with good contrast.

in which the aorto-iliac run-off is normal. Figure 6 shows a left brachial abdominal aortogram with good contrast. Except for minimal tortuosity the aorta and iliac vessels are normal. In figure 7 an atrophic left kidney and extensive occlusive disease of the left common and external iliac arteries in a 51-year-old woman are shown by the same technique.

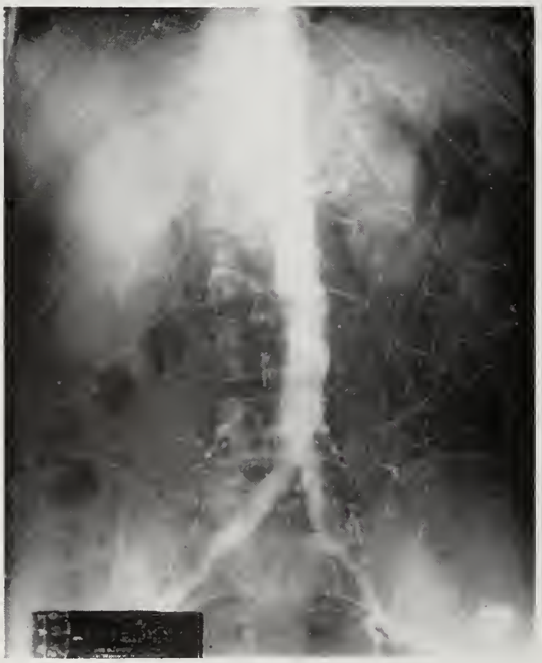

FIG. 7. Atrophic left kidney and extensive occlusive disease of left common and external iliac arteries.

In figure 8 a small splenic aneurysm is demonstrated in the splenic hilum. The aorta and its branches are otherwise normal.

## Renal Arteriography

Visualization of the renal arteries can be achieved by the methods described,[2, 4, 5, 6] but urologists have felt the need of a simpler and safer technique for studying the renal vasculature. Left brachial angiography provides excellent contrast for visualization of the renal arteries. The roentgenograms are taken, starting at the end of the injection, at the rate of 3 per second for 2 seconds, then 1 roentgenogram per second for the next 3 or 4 seconds. Subsequent nephrograms of excellent quality are obtained.

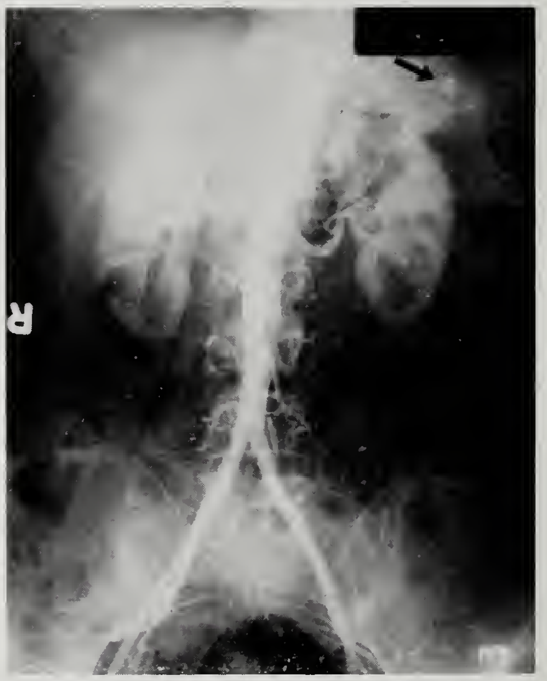

FIG. 8. Small splenic aneurysm in splenic hilum. Aorta and branches are otherwise normal.

Roentgenograms are then made 15 and 30 minutes later for additional studies of the urinary tract. The entire study is usually performed with the patient supine but may easily be carried out in the erect position to demonstrate postural changes in the appearance of the renal arteries.

Figure 9 shows renal angiograms of carcinoma of the right and left kidneys respectively. The characteristically numerous and large tumor vessels are well shown in each case.

## Discussion

Brachial angiography has been carried out by a number of physicians and surgeons on both the

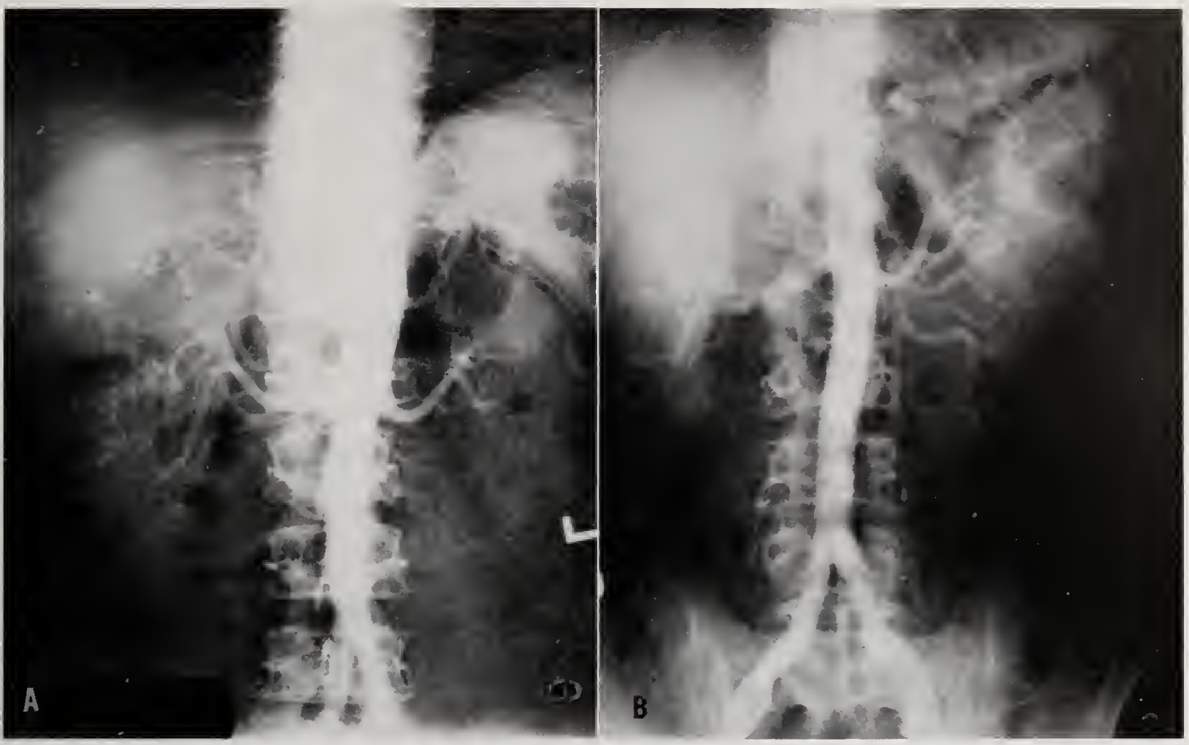

**FIG. 9. Renal angiograms of carcinoma of right (A) and left (B) kidneys.**

Attending and House Staff at the Washington Hospital Center. In all, the study was attempted 50 times. On 7 occasions the operator failed to puncture the brachial artery. In 43 cases the artery was cannulated and the study completed. In 3 of these studies either no picture or an unsatisfactory picture was obtained because of incorrect timing of the seriograph. In 4 cases no picture was obtained, and subsequent roentgenograms of the arm showed that the dye had been injected outside the artery into the soft tissues of the arm. In these cases there was some ecchymosis and transient discomfort in the arm, but no permanent injury resulted in any case. Transient diminution of pulse at the wrist occurred in a few patients, but in no patient was there loss of radial pulse at any time. Most of the complications and failures occurred when we first started to use this technique. They rarely occur at the present time.

In general we have found this technique to be both simple and safe. Its versatility is greatly increased by the fact that fluoroscopy is not required. All that is required is the needle, the power injector, a flexible pressure connector, and a modicum of skill in placing the needle and operating the seriograph.

Our results have been very gratifying, and we believe that brachial angiography is a significant contribution to angiographic technique.

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*(Continued on page 410)*

# Studies on Blood Viscosity and Its Significance in Anesthesia

**S. N. ALBERT, M.D.**
**S. C. JAIN, M.B., B.S.**

*Anesthesiology Research Laboratory, Department of Anesthesiology, Washington (D.C.) Hospital Center*

**JOHN N. SHADID, M.D.**

*Attending, Vascular Surgery Section, Department of General Surgery, Washington Hospital Center*

AMONG THE MANY FACTORS that influence the rate of perfusion of tissues with blood is the viscosity of blood.[1-5] Aggregation of red blood cells at the pre- and postcapillary sphincteric regions, the stability of the cellular suspension in plasma,[6] and the phenomena of blood sequestration are all directly related to changes that have taken place in the viscous properties of blood.[5] The anesthesiologist is intimately concerned with blood flow, tissue perfusion, and the effect of anesthetic agents on the rheology of blood.

In recent years there has been renewed interest in the study of blood viscosity and the stability of the cellular suspension in plasma in relationship to thrombotic phenomena[3, 7, 8, 9] and shock.[4, 10, 11] The purpose of this report is 3-fold: (1) to review the property of matter to resist deformation (viscosity) as applied to fluids; (2) to describe a simple method for measuring blood viscosity relative to the viscosity of water or normal saline solution at room temperature, and (3) to present blood viscosimetric studies on normal volunteers and patients under the effect of anesthetic agents, vasopressors, and hypothermia.

The significance of these findings is discussed with particular reference to factors that alter blood viscosity and the effect of these changes on blood flow at the tissue level.

## Viscosity of Fluids

All fluids possess a definite resistance to change of form. This property, a sort of internal friction, is called viscosity.[12, 13] Poiseuille,[14] in 1840, studied all the factors that regulate the rate of flow of fluids through a rigid tube of uniform diameter. His findings are summarized in equation 1.

$$V = \frac{\pi r^4 \times P \times T}{\eta \times 8L}$$

$V$ = volume of fluid in cu. cm.
$r$ = radius of the tube in cm.
$P$ = frictional loss of energy in cm.$^2$/Gm.
$T$ = time in seconds
$L$ = length of the tube in cm.
$\eta$ = coefficient of viscosity in Gm./sec./cm.$^2$
Unit of absolute viscosity—poise.
Water at 20°C has a viscosity of 0.01 poise or 1 centipoise.[12]

Equation 1 can be modified in terms of viscosity as in equation 2:

$$\eta = \frac{\pi r^4 \times P \times T}{V \times 8L}$$

The viscosity of a fluid can also be expressed in terms of relative viscosity, relative to a standard fluid when measured under identical conditions. Diameter (r), length (L), and P and V in equation 2 are represented by a constant, K, the only variable being time (T). Equation 3 denotes relative viscosity:

$$\eta_1/\eta_0 = K \times T_1/K \times T_0$$

or,

$$\eta_1/\eta_0 = T_1/T_0$$

The apparent relative viscosity of blood or plasma is the ratio between blood viscosity or plasma viscosity and water measured under identical conditions at room temperature.[15] The changes in viscosity produced by temperature may be considered to be proportional for the 2 fluids under study.[16]

## Method for Measuring Relative Viscosity of Fluids

There are presently available numerous systems for viscosimetric measurements of fluids.[6, 10, 12, 17, 18, 19] Some are based on the ratio of time to the time necessary to displace a given volume under constant pressure. Others utilize the torque principle to measure absolute viscosity in terms of frictional force. In this instance fluid is placed between 2 surfaces, and viscosity is determined at varying shear rate and stress.[17, 19]

The viscosimeter devised by S. N. Albert and used in this study is used to measure the variable time factor for the displacement of a given volume of a fluid with a drop in shear stress. In practice, time is measured to obtain a drop in pressure from 40 to 30 mm. Hg on an aneroid manometer, when the fluid is displaced through a 25-gauge, half-inch-long needle. The apparatus (figure 1) consists of (C), the barrel of a Luer-Lok tuberculin syringe; 2 3-way stopcocks—1 (1) attached to the Luer-Lok of the barrel and the second (2) to the distal open end of the barrel; (A), a 25-gauge half-inch needle attached to stopcock (1), and (D), an aneroid manometer calibrated from 0 to 50 mm. Hg, full range, attached to stopcock (2) to measure pressure. Three-way stopcock (1) when placed in the upward direction serves to fill the barrel of the syringe to the 0.5 ml. mark with the fluid to be analyzed; in the downward direction it serves to prime the needle. Stopcock (2) serves to rinse the barrel out when directed downward, and when it is in the upward position air is injected to raise the pressure in the aneroid manometer.

*Procedure.*

*Step 1.* With the stopcock (1) pointing up and stopcock (2) pointing down, the barrel of the syringe is filled to the 0.5 ml. mark with the fluid to be analyzed. Stopcock (1) is turned down and the needle is primed with the fluid.

*Step 2.* Stopcock (2) is turned up, and air is injected until the aneroid manometer reads 41–42 mm. Hg.

*Step 3.* Stopcocks (1) and (2) are adjusted to produce straight unidirectional connections between the needle, fluid and manometer. As the fluid is being delivered by the needle the pressure in the manometer drops. The stopwatch is started the instant the manometer needle reaches 40 mm. Hg and is stopped when the pressure reads 30 mm. Hg. The time interval it takes to obtain a 10 mm. Hg fall in pressure (40 to 30 mm. Hg) is recorded as T, for normal saline $T_0$, and for blood or plasma $T_1$.

*Calculation.* $T_1/T_0$ denotes the relative viscosity of blood as compared to normal saline at room temperature. Total proteins in plasma were measured both by the standard biuret and refractometer methods.[20, 21] Albumin/globulin ratio was also determined by the biuret method. Hematocrit was determined by the microhematocrit technique and values corrected for trapped plasma.[22]

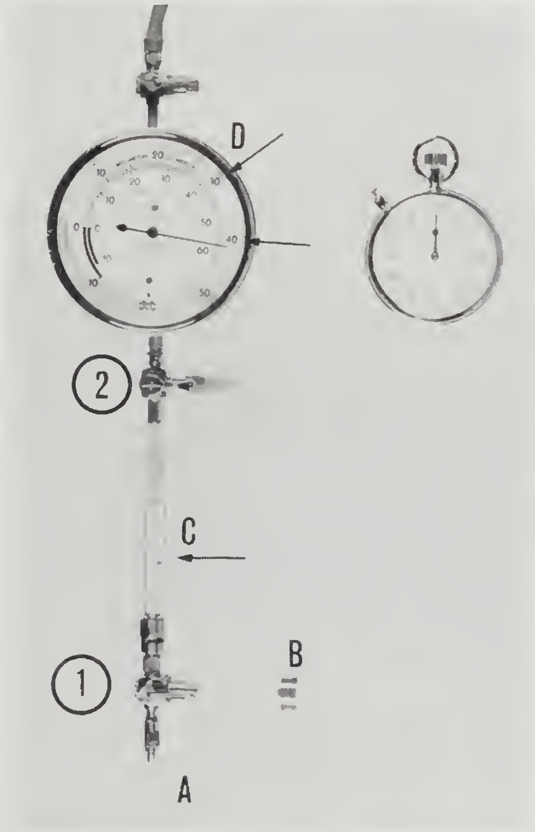

**FIG. 1. Apparatus devised by Dr. S. N. Albert for measuring the viscosity of fluids against a standard reference solution at room temperature. Stopcock (1) serves to prime the needle A and fill the barrel to level C, 0.5 ml., with fluid in syringe B. Stopcock (2) serves to raise the pressure in the system, manometer D, by injecting air and to clean the barrel and needle. Arrows indicate pressure range for measurements—40–30 mm. Hg pressure timed with a stopwatch.**

## Material and Control Studies

Control studies were performed on blood drawn from 10 normal volunteers. Twenty ml. of blood was anticoagulated with heparin and 10 ml. allowed to clot. All viscosity studies were performed in triplicate, and the average reading for the 3 tests was recorded.

I. *Comparison of heparinized versus nonheparinized blood viscosity studies.* There was essentially no difference in viscosimetric readings between freshly drawn blood and blood anticoagulated with heparin in this study. Results are presented in table 1.

**TABLE 1: Comparative Viscosity Measurements of Heparinized and Nonheparinized Blood**

| Hematocrit Per cent | Freshly Drawn Blood | Heparinized Blood |
|---|---|---|
| 47.5 | 6.14 | 6.13 |
| 50 0 | 4.60 | 4.59 |
| 46.5 | 6.13 | 6.12 |
| 46.5 | 5.09 | 5.10 |
| 40.5 | 4.85 | 4.84 |
| 41.0 | 5.20 | 5.18 |
| 40.3 | 4.37 | 4.36 |
| 40.3 | 4.44 | 4.43 |
| 42.5 | 4.77 | 4.75 |
| 45.3 | 5.19 | 5.17 |
| Mean = 44.0 | Mean = 5.08 | Mean = 5.06 |
| Per cent difference = 0.39 | | |

II. *Comparative studies on plasma and serum.* Total plasma protein, A/G ratio, and viscosimetric measurements show that there is essentially no difference between serum and plasma viscosity. Results of these studies are presented in table 2.

**TABLE 2: Comparison Between Plasma and Serum Viscosity**

| Total Protein | | A/G Ratio | | Viscosity | |
|---|---|---|---|---|---|
| Plasma | Serum | Plasma | Serum | Plasma | Serum |
| 8.30 | 8.20 | 1.07 | 1.06 | 1.95 | 1.95 |
| 7.30 | 7.30 | 1.60 | 1.60 | 1.65 | 1.64 |
| 6.20 | 6.15 | 1.81 | 1.80 | 1.77 | 1.76 |
| 6.65 | 6.63 | 1.11 | 1.10 | 1.74 | 1.74 |
| 6.50 | 6.45 | 2.10 | 2.18 | 1.62 | 1.61 |
| 6.50 | 6.50 | 1.60 | 1.60 | 1.86 | 1.85 |
| 6.65 | 6.66 | 1.51 | 1.52 | 1.79 | 1.80 |
| 7.75 | 7.75 | 0.82 | 0.83 | 1.40 | 1.40 |
| 6.55 | 6.55 | 1.42 | 1.41 | 1.59 | 1.60 |
| 6.65 | 6.65 | 1.55 | 1.55 | 1.92 | 1.92 |
| Mean = 6.90 | 6.88 | 1.45 | 1.46 | 1.73 | 1.72 |
| Per cent difference = −0.28 | | 0.0 | | −0.5 | |

III. *Plasma viscosity: a function of the nature and concentration of protein.* Plasma removed from heparinized whole blood samples was analyzed for total protein and A/G ratio. The concentration of protein was altered by either diluting the plasma with normal saline or by addition of 25 per cent human albumin or gamma globulin. Figure 2 presents the results obtained on plasma viscosity by varying total protein and the A/G ratio. It is quite apparent that plasma viscosity varies with the concentration and nature of protein. Globulin of higher molecular weight produces relatively greater changes in plasma viscosity than does albumin in equivalent concentrations.

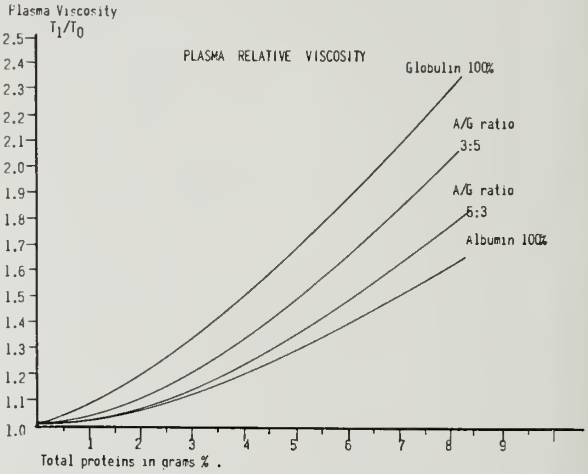

**FIG. 2. Effect of the nature and concentration of proteins in plasma on the relative viscosity of plasma at room temperature. Reference fluid utilized: normal saline solution at room temperature.**

IV. *Blood viscosity: a function of red cell concentration.* Heparinized blood was centrifuged and the red blood cells removed. Different cellular concentrations were obtained by varying the red blood cells to normal saline ratio. The results of various concentrations of red blood cell suspension in saline are presented in figure 3 by curve B. There seems to be a definite relationship between the volume of red blood cells in suspension and viscosity. As the red blood cell concentration increases the viscosity increases.

V. *Blood viscosity: a function of the hematocrit.* Heparinized blood was centrifuged and the plasma separated from the red blood cells. Different hematocrit ratios were prepared by varying the red blood cell to plasma ratio. The varying concentrations of red blood cells in plasma versus viscosity are presented in figure 3, curve A. It is quite apparent that blood viscosity varies with the cellular concentration. Analysis of the plasma used as a diluent to prepare the various hematocrit ratios had an average protein concentration of 7.2 Gm. and the A/G ratio within normal limits of 1.6–2.0.

## Summary on Control Studies

The system devised and presented in this report to measure relative viscosity seems to be valid. In figure 3, curve A, on the relationship between blood viscosity and hematocrit the shape of the curve is comparable to those obtained and reported in the literature from standard viscosimetric techniques.[15, 23, 24]

Plasma viscosity depends on the nature and amount of proteins in solution as well as the presence of different types of macromolecules. Blood viscosity depends on both plasma viscosity and the concentration of red blood cells in suspension.

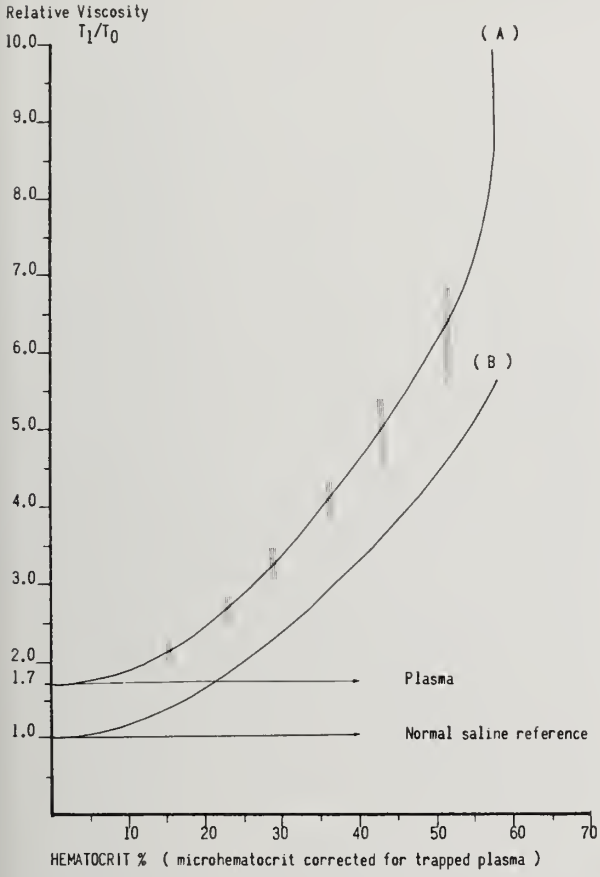

**FIG. 3. Relative viscosity at room temperature of heparinized blood versus hematocrit. Curve A: combined contribution of red blood cells and plasma to total blood viscosity. Curve B: relationship of red blood cells in saline suspension to viscosity at room temperature. Reference fluid used in both instances: normal saline solution at room temperature.**

## Experimental Studies

Blood and plasma viscosimetric measurements were performed on patients undergoing different surgical procedures with the apparatus described in this report. Samples of blood were drawn before and 15 minutes after induction of anesthesia prior to surgery. The 3 anesthetic agents utilized in this study were thiopental sodium, halothane, and cyclopropane. The effects of these anesthetic agents on blood and plasma viscosity are tabulated in table 3.

**TABLE 3: Effect of Pentothal, Halothane and Cyclopropane on Viscosity of Blood**

| Hematocrit Per cent | | Total Protein (Plasma) | | A/G Ratio | | Blood Viscosity | | Plasma Viscosity | |
|---|---|---|---|---|---|---|---|---|---|
| C | E | C | E | C | E | C | E | C | E |
| PENTOTHAL | | | | | | | | | |
| 36.5 | 35.0 | 6.60 | 6.40 | 1.75 | 1.80 | 3.12 | 3.08 | 1.62 | 1.60 |
| 36.8 | 36.0 | 6.75 | 6.55 | 1.50 | 1.52 | 3.20 | 3.13 | 1.62 | 1.60 |
| 35.0 | 33.9 | 7.10 | 6.95 | 1.49 | 1.50 | 3.41 | 3.34 | 1.50 | 1.47 |
| 31.0 | 30.2 | 7.10 | 6.98 | 0.97 | 0.98 | 3.34 | 3.25 | 1.87 | 1.85 |
| 36.8 | 36.0 | 6.40 | 6.40 | 0.98 | 0.97 | 3.87 | 3.80 | 1.66 | 1.60 |
| 42.0 | 40.5 | 6.40 | 6.20 | 1.00 | 1.01 | 4.12 | 4.00 | 1.72 | 1.65 |
| 38.0 | 37.5 | 6.30 | 6.00 | 1.47 | 1.46 | 3.70 | 3.58 | 1.70 | 1.65 |
| 32.5 | 32.0 | 6.80 | 6.60 | 0.88 | 0.88 | 4.13 | 4.01 | 1.87 | 1.85 |
| 32.5 | 31.8 | 6.30 | 6.20 | 1.52 | 1.51 | 3.66 | 3.59 | 1.83 | 1.80 |
| 37.0 | 35.8 | 7.00 | 6.70 | 1.80 | 1.80 | 4.12 | 3.90 | 1.70 | 1.70 |
| Mean = 35.8 | 34.8 | 6.67 | 6.50 | 1.336 | 1.343 | 3.66 | 3.56 | 1.71 | 1.67 |
| Per cent difference = −2.79 | | −2.55 | | +0.52 | | −2.73 | | −2.33 | |
| HALOTHANE | | | | | | | | | |
| 38.0 | 36.8 | 7.35 | 7.00 | 1.82 | 1.83 | 4.79 | 4.65 | 1.75 | 1.70 |
| 34.5 | 33.0 | 6.15 | 6.10 | 1.67 | 1.68 | 3.72 | 3.62 | 1.84 | 2.00 |
| 27.0 | 26.5 | 6.00 | 5.50 | 0.93 | 0.92 | 3.36 | 3.29 | 1.80 | 1.50 |
| 35.8 | 34.5 | 5.75 | 5.50 | 1.55 | 1.55 | 3.72 | 3.62 | 1.60 | 1.60 |
| 34.0 | 33.8 | 6.50 | 6.20 | 1.00 | 1.00 | 3.47 | 3.35 | 1.84 | 1.80 |
| 31.0 | 30.0 | 6.25 | 6.00 | 1.05 | 1.00 | 3.76 | 3.65 | 1.86 | 1.80 |
| 44.5 | 43.0 | 6.65 | 6.50 | 2.80 | 2.78 | 4.44 | 4.30 | 2.38 | 2.20 |
| 38.0 | 36.5 | 7.50 | 7.20 | 1.54 | 1.54 | 4.30 | 4.20 | 1.57 | 1.60 |
| 34.5 | 33.2 | 6.50 | 6.20 | 1.24 | 1.23 | 3.88 | 3.75 | 1.50 | 1.45 |
| 42.0 | 41.2 | 7.25 | 7.15 | 0.93 | 0.93 | 4.90 | 4.70 | 1.88 | 1.90 |
| Mean = 35.9 | 34.8 | 6.59 | 6.33 | 1.45 | 1.44 | 4.03 | 3.91 | 1.80 | 1.75 |
| Per cent difference = −3.60 | | −3.94 | | −0.48 | | −2.97 | | −2.77 | |
| CYCLOPROPANE | | | | | | | | | |
| 34.8 | 36.0 | 7.75 | 8.20 | 1.24 | 1.24 | 4.60 | 4.71 | 2.00 | 2.02 |
| 34.0 | 34.8 | 6.20 | 6.50 | 0.51 | 0.50 | 4.27 | 4.34 | 1.80 | 1.80 |
| 40.3 | 41.9 | 6.30 | 6.50 | 1.54 | 1.52 | 5.33 | 5.45 | 1.64 | 1.65 |
| 41.5 | 42.3 | 6.35 | 6.42 | 1.05 | 1.00 | 5.29 | 5.44 | 1.86 | 2.00 |
| 34.0 | 35.2 | 6.20 | 6.39 | 2.64 | 2.60 | 4.15 | 4.24 | 1.83 | 1.85 |
| 36.5 | 37.2 | 6.20 | 6.10 | 1.29 | 1.30 | 4.43 | 4.51 | 1.64 | 1.65 |
| 42.5 | 43.8 | 7.60 | 7.80 | 1.00 | 1.00 | 5.00 | 5.13 | 1.94 | 1.97 |
| 43.5 | 44.4 | 6.75 | 6.80 | 1.01 | 1.00 | 5.32 | 5.43 | 1.80 | 1.82 |
| 27.3 | 28.9 | 4.75 | 5.10 | 1.11 | 1.15 | 2.74 | 2.79 | 1.40 | 1.41 |
| 35.8 | 37.2 | 6.35 | 6.50 | 1.35 | 1.33 | 3.92 | 4.03 | 1.51 | 1.55 |
| Mean = 37.0 | 38.2 | 6.44 | 6.63 | 1.27 | 1.26 | 4.50 | 4.60 | 1.74 | 1.77 |
| Per cent difference = +3.10 | | +2.95 | | −0.78 | | +2.22 | | +1.72 | |

Ten patients undergoing hypothermia under anesthesia with thiopental sodium and halothane were studied for alterations in blood viscosity. Control samples of blood were taken before induction of anesthesia and after induction of hypothermia when the temperature reached 32–33°C by esophageal thermocouple. The results obtained are tabulated in table 4.

**TABLE 4: Effect of Hypothermia on Blood Viscosity**

| Hematocrit Per cent | | Total Protein (Plasma) | | A/G Ratio | | Blood Viscosity | | Plasma Viscosity | |
|---|---|---|---|---|---|---|---|---|---|
| C | E | C | E | C | E | C | E | C | E |
| 32.5 | 34.2 | 5.30 | 5.60 | 1.04 | 1.03 | 2.37 | 2.70 | 1.44 | 1.52 |
| 29.5 | 31.3 | 6.40 | 6.90 | 0.97 | 0.97 | 3.42 | 3.88 | 1.60 | 1.73 |
| 34.8 | 37.5 | 7.65 | 7.85 | 1.95 | 1.94 | 4.26 | 4.90 | 1.67 | 1.75 |
| 34.8 | 37.0 | 7.75 | 7.90 | 1.93 | 1.93 | 3.48 | 3.97 | 1.78 | 1.83 |
| 31.5 | 33.3 | 6.35 | 6.80 | 1.70 | 1.69 | 3.54 | 3.92 | 1.85 | 1.89 |
| 34.0 | 36.2 | 6.40 | 7.00 | 1.06 | 1.06 | 3.61 | 4.06 | 1.59 | 1.63 |
| 28.3 | 30.0 | 6.30 | 6.60 | 1.01 | 1.00 | 3.37 | 3.87 | 1.55 | 1.62 |
| 28.8 | 30.5 | 6.00 | 6.90 | 2.00 | 1.98 | 3.35 | 3.81 | 1.54 | 1.62 |
| 35.0 | 37.2 | 6.05 | 6.20 | 1.16 | 1.10 | 3.96 | 4.45 | 1.61 | 1.70 |
| 42.0 | 44.5 | 8.00 | 8.19 | 0.92 | 0.93 | 5.09 | 5.78 | 2.07 | 2.10 |
| Mean = 33.1 | 35.1 | 6.62 | 6.99 | 1.37 | 1.36 | 3.64 | 4.13 | 1.67 | 1.74 |
| Per cent difference = +6.04 | | +5.58 | | −0.73 | | +13.4 | | +4.19 | |

The effect of an infusion of norepinephrine on blood and plasma viscosity are presented in table 5. Control blood samples were drawn during a resting period at base-line blood-pressure level, and experimental samples were taken when the pressure reached 25 per cent above the resting level and maintained at this elevated level for a period of 5 minutes.

**TABLE 5: Effect of Levophed® on Blood Viscosity**

| Hematocrit Per cent | | Total Protein (Plasma) | | A/G Ratio | | Blood Viscosity | | Plasma Viscosity | |
|---|---|---|---|---|---|---|---|---|---|
| C | E | C | E | C | E | C | E | C | E |
| 35.0 | 37.0 | 7.20 | 7.30 | 1.36 | 1.40 | 3.55 | 4.06 | 1.82 | 1.88 |
| 35.8 | 36.8 | 7.65 | 7.65 | 1.09 | 1.15 | 4.16 | 4.43 | 1.83 | 2.13 |
| 39.0 | 40.3 | 6.30 | 6.70 | 2.00 | 1.79 | 4.31 | 6.56 | 2.00 | 2.06 |
| 38.3 | 38.3 | 7.00 | 7.20 | 1.29 | 1.21 | 4.14 | 4.28 | 2.21 | 2.50 |
| 42.0 | 43.0 | 7.05 | 7.05 | 1.76 | 1.33 | 3.53 | 3.55 | 1.86 | 1.75 |
| 34.0 | 34.8 | 6.80 | 6.60 | 4.10 | 4.09 | 4.72 | 4.55 | 1.69 | 1.69 |
| 42.0 | 44.0 | 7.75 | 7.75 | 1.38 | 1.38 | 4.86 | 4.93 | 2.03 | 1.66 |
| 46.0 | 49.0 | 6.75 | 6.90 | 1.81 | 1.70 | 4.93 | 5.46 | 1.66 | 1.80 |
| 27.8 | 28.0 | 5.75 | 5.90 | 1.30 | 1.31 | 2.71 | 2.85 | 1.50 | 1.50 |
| 31.5 | 32.0 | 7.80 | 7.80 | 0.81 | 0.74 | 3.66 | 3.86 | 2.03 | 2.06 |
| Mean = 37.1 | 38.3 | 7.00 | 7.08 | 1.68 | 1.61 | 4.05 | 4.45 | 1.86 | 1.90 |
| Per cent difference = +3.23 | | +1.10 | | −4.16 | | +9.87 | | +2.15 | |

## Summary on Experimental Studies

From the results presented in tables 3, 4, and 5 one can infer that thiopental sodium and halothane anesthesia reduce blood viscosity, while cyclopropane, hypothermia, and norepinephrine raise blood viscosity. The fall and rise in viscosities as seen in these studies seem to be out of proportion to the changes observed in the hematocrit. It is possible that the combined effect of hemodilution or hemoconcentration with a change in plasma characteristics is responsible for the observed effect on viscosity.

## Discussion

Poiseuille's equation on the study of viscosity of fluid applies only to fluids that behave in a Newtonian manner. This implies that the material dissolved in the vehicle fluid is stable and the ratio between shear stress (pressure) and shear rate (flow) remain constant.[25, 26]

Plasma can be considered to behave in a Newtonian manner.[25] The viscosity of plasma varies with the concentration and nature of protein in solution. The addition of red blood cells to plasma tends to alter the characteristics of the fluid and renders blood to behave in a non-Newtonian manner. Red blood cells suspended in Ringer's solution in equivalent hematocrit concentrations and shear rates are of lower viscosity than blood (cells in suspension in plasma). In this instance it seems that red blood cells suspended in Ringer's solution behave more like a stable fluid, Newtonian in nature, quite contrary when compared to whole blood. Elements found in plasma and not present in Ringer's solution tend to alter certain aspects in the mechanisms of blood flow. One can postulate that there is an interaction between the surface of the red blood cell with 1 or more of the protein fractions contained in plasma.[27, 28] For a given hematocrit value the viscosity of blood increases at low shear rate and decreases at higher shear rates.[8, 17, 26] The size, shape, concentration and charge of the red blood cells held in suspension alter blood viscosity, which varies with shear stress and rate.[28]

Haynes[29] believes that fluctuations in blood viscosity due to the orientation of protein molecules and the discoid nature of red blood cells take effect only at low shear rate and is of no significance in the flow range encountered under physiologic conditions in the vascular bed. Whittaker and Winton[15] found that within the pressure range of 30–120 mm. Hg the relationship and ratio between blood viscosity to pressure seems to remain fairly constant. The rate of displacement of blood or normal saline through the viscosimeter tube within the pressure or shear stress of 40–30 mm. Hg as utilized in the technique described is approximately equivalent to the pressure range one would encounter under physiologic conditions in the microcirculation. Within this range of shear stress the viscosity of blood does not seem to be effected by the shear rate or flow.

Blood viscosimetric measurements in vitro and in vivo in minute vessels of the hind limb of the dog differ.[15] Several factors may account for the reduced viscosity seen in in vivo studies. One must consider the caliber of capillary vessels which is narrower than the viscosimeter tube; moreover, capillary vessels vary continuously in diameter and length. Skimming of plasma takes place at points where minute vessels branch off leaving blood of lower hematocrit concentrations to flow through. Also, red blood cells in the microcirculation assume an axial stream which is fast-moving and is surrounded by a large sleeve of plasma in contact with the vessel wall.[30] All of these factors affect the viscosity of blood, which is reduced in the capillary bed.[31] One must also consider the fact that in vivo adaptation processes are constantly in progress that tend to maintain an adequate rate of blood flow at the tissue level. Release of fluidifying elements render blood less viscous to facilitate blood flow.[32] On the other hand, sludging factors[33, 34] released by the breakdown of tissues would tend to increase blood viscosity and cause cellular aggregation. Gelin[1] described these changes and demonstrated their effect on blood sequestration in traumatic conditions. He demonstrated that the tendency for red blood cells to aggregate is greatest in the post-capillary venules where the overhead pressure is very low and the viscosity is elevated.

The effect of blood viscosity on peripheral resistance, blood flow, venous return and cardiac output are well documented.[35-38] Peripheral vascular resistance increases with a rise in blood viscosity, and venous return and cardiac output are correspondingly reduced. Various factors that seem to alter blood viscosity and the stability of the red blood cell suspension in plasma are summarized in figure 4.

Of the anesthetic agents and techniques studied, thiopental sodium and halothane reduce blood viscosity, while cyclopropane, hypothermia and sympathomimetic amines tend ~~to~~ raise blood viscosity. Blood viscosity increases with hemoconcentration. Hypotension, in the presence of an elevated blood viscosity and decreased suspension stability of the red blood cell in plasma, will enhance cellular aggregation and blood sequestration, and will reduce the rate of tissue perfusion with blood and result in hypoxic changes.

The rationale for utilizing low-molecular dextran to combat high blood viscosity and break up cellular aggregation in the microcirculation stems from the fact that such infusions reduce viscosity and fibrinogen level.[1, 4, 5, 39] Adherence of the micromolecules to the membrane of the cells alters its charge and enhances cellular repulsion. Oxygen therapy in shock is valid. Hyperventilation and hypocarbia with an increased percentage of dissolved oxygen in blood reduces blood viscosity.[40]

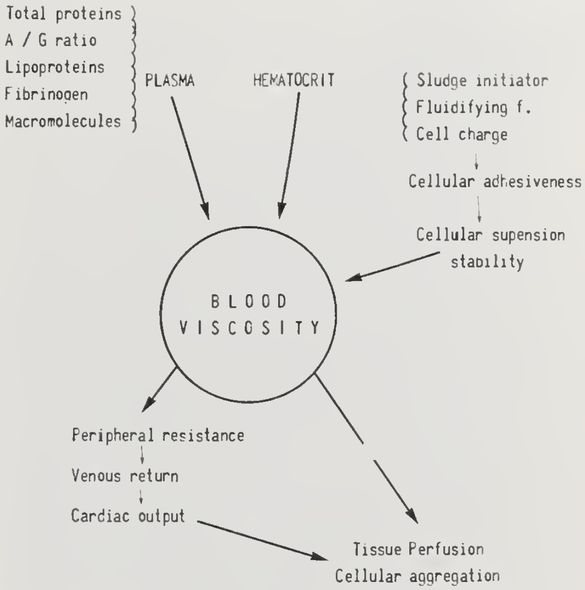

**FIG. 4. Schema representing various factors that affect blood viscosity and its effect on tissue perfusion and cell aggregation.**

### Summary

The principles for measuring blood viscosity have been discussed. Although blood does not behave in a Newtonian manner, the data obtained in in vitro measurements are useful.

A modified simple method for measuring blood viscosity relative to normal saline has been described.

There is essentially no difference in viscosity between fresh blood and heparinized blood and between plasma and serum. Viscosity varies with the quantity and nature of proteins in plasma and the cellular concentration.

Halothane and thiopental sodium reduce blood viscosity and seem to be indicated in conditions in which there is hemoconcentration and a tendency for red blood cells to aggregate. Cyclopropane, hypothermia, and norepinephrine tend to raise blood viscosity and would seem to be contraindicated when the microcirculation is failing.

*(Continued on page 410)*

# A New Technique of Transpubic Vesicourethral Suspension for Urinary Incontinence

**WILLIAM H. FERGUSON, M.D., F.A.C.S.**

*Chairman, Department of General Surgery, Washington (D.C.) Hospital Center*

URINARY INCONTINENCE in the female is a frequent complaint and presents a grave social and anatomic problem.

There is something in common with all the techniques designed to cure this problem. All intend to secure anterior fixation of the vesicourethral junction, some degree of angulation at the bladder neck, and elongation of the urethra. The most successful of these many procedures is the one described by Marshall, Marchetti, and Krantz.[1] In their original article they described a test for case selection consisting of a lifting pressure on the urethra to see if continence could be established. In their series of 44 selected cases, 36 had good results, 3 improved, and 5 were failures. They concluded that their bad results were caused by poor selection of cases, failure of the sutures to hold, and prior surgery with excessive scar tissue. It is my belief that failure of the periosteal suture to hold is the big problem.

Another procedure reported by Gaker, Smith and Helfman[2] consisted of placing multiple drill holes transpubically through which chromic sutures were tied. No. 0 chromic sutures, 2 to 4 in number, were placed along and in the lateral urethral wall up to the vesicourethral junction. Prior to tying these sutures talc was sprinkled over the tissues to be approximated. The authors reported good results.

In 1960 from a nulliparous woman aged 47 I removed a large fibroid that formed a lower abdominal mass extending up to the level of the umbilicus. Her complaints were those of increasing abdominal size and pressure in the lower abdomen and pelvis. Incontinence was not a problem. Approximately 8 months following surgery she complained of increasing pelvic relaxation, poor bladder support, and incontinence. The incontinence was interfering with her ability to work properly as a secretary. She was also inconvenienced by the necessity of wearing protective pads and clothing. In 1961 she was hospitalized for surgical correction of her incontinence. This was accomplished after the technique described by Marshall, Marchetti and Krantz. The patient made an uneventful recovery, and at the end of 2 months returned to work—dry, content and happy. A few days after she returned to work she ran a short distance to catch a bus and experienced a sharp, sudden, stinging pain in the pubic area. That evening she was aware of stress incontinence again. Over the next few weeks she lost the stress part and became a true soaker. As she so aptly described her situation, "I sit wet all day and lie wet most of the night; I am truly miserable."

Since the patient experienced good results with the Marshall-Marchetti-Krantz procedure up to the point of running for the bus and since she experienced pain that could be associated with her sutures tearing out of her prior fixation, I reasoned that permanent cure could be expected if I could secure permanent suspension. Either the suture material (chromic 0) or the periosteum had not held securely. Merselene® is a new material with lasting tensile strength, is pliable, and produces minimal tissue reaction. This material was chosen for the transpubic fixation. Cognizant of the history of various procedures as well as the availability of newer suture material, my thought turned to some means of securing permanent vesicourethral suspension and fixation to the pubic bones as well as suspension of the dome of the bladder to the lower part of the abdominal incision. I did not think that an irritant such as talc was indicated. This problem was discussed with the patient to the point of privileged consent, and she was again hospitalized for surgery.

## Technique

For this procedure both vaginal and abdominal preparations are done, and a Foley catheter with a 5 c.c. bag is placed in the bladder. A piece of string is tied to the catheter and brought out over the foot of the table for traction during the surgical procedure.

Through a low midline incision extending well down over the prominence of the symphysis the abdomen is explored. Any other abdominal procedures that are to be done are accomplished at this time.

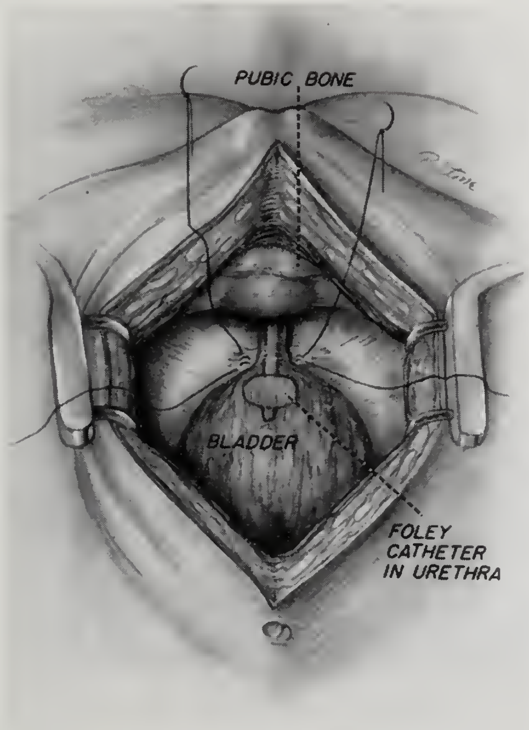

**FIG. 1. Foley catheter in place and fascial site of suture at bladder neck.**

Blunt dissection will adequately develop the retropubic area of the space of Retzius in most instances. Occasional sharp dissection will be needed for the scar tissue of prior trauma or surgery. This dissection is carried laterally along the course of the urethra until the catheter and its inflated bulb in the bladder can easily be seen and felt. As this area of dissection is developed a thickened white fascial plane will be found bilaterally near the vesicourethral junction. It is in this fascia that the suspending suture will be placed (figure 1). Two simple over-and-over stitches taken through 2 bites of fascial tissue are placed about ½ to 1 cm. lateral to the junction of the urethra and bladder. This junction is acutely defined by traction on the catheter string with a resulting pressure from within the bladder toward the urethra. No. 0 Merselene is the suture material of choice for these 2 stitches.

In my experience 1 well-placed stitch on either side of the vesicourethral junction is all that is needed to provide permanent suspension to the pubic bone. With traction on these 2 sutures one can easily estimate the point on the back side of the pubic bone to which they will coapt without undue tension. With strong retraction at the insertion of the rectus muscle into the pubic bone a small ⅛ inch drill can be used to penetrate the bone to the selected point (figure 2). If the drill bit does not have a small hole to carry the suture material, a straight needle may be used. The other end of the suture is threaded on a needle and placed subperiosteally in such manner as to emerge close to the previously made drill hole anteriorly. These 2 ends are tied securely, and the retracted rectus muscle is allowed to fall back over the knot (figure 3). No. 000 interrupted chromic stitches, 3 to 5 in number, are placed in the dome of the bladder, transversalis fascia, and pyramidalis muscle. This will complete the suspension, and the abdominal closure is accomplished in the usual manner.

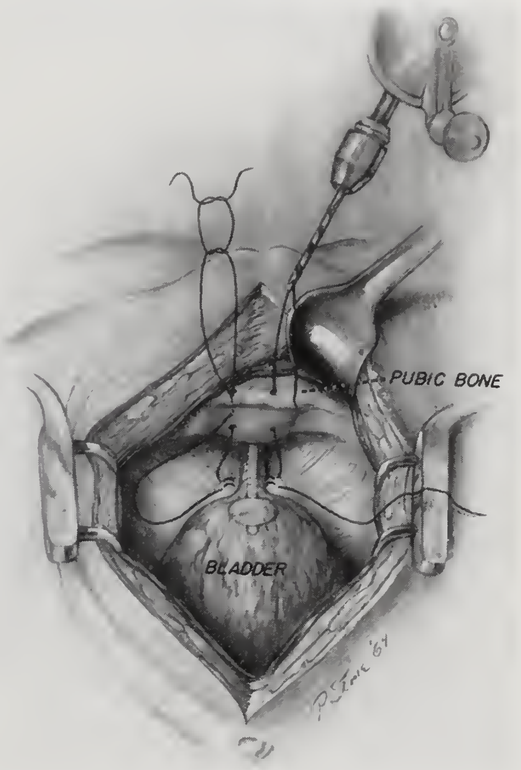

**FIG. 2. Drill through pubic bone with suture through tip of drill.**

## Discussion

This technique will provide sufficient elongation of the urethra and angulation at the bladder neck to result in a cure for incontinence. No

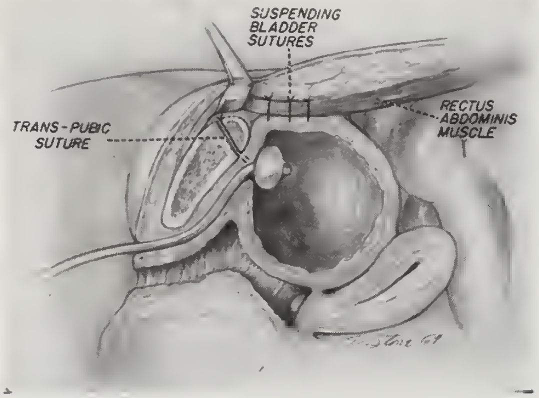

**FIG. 3. Lateral view of suspension.**

packs, drains, or prophylactic antibiotics are used. Hemostasis should not be a problem, and no foreign material other than 2 strands of Merselene and 3 to 5 chromic sutures are involved.

A total of 16 patients have been managed with this technique, and all of them, including the first one who created the need for a different and new procedure, are quite dry and happy. Clinical experience has shown that this procedure is sound and easily accomplished without special equipment and offers a solution to the problem of incontinence.

### Summary

Review of the literature and clinical experience with the problem of incontinence seems to indicate a need for a more satisfactory solution. The procedure presented here offers a new method for obtaining urinary continence. Previous pelvic surgery or surgical therapy for incontinence is not a contraindication to this procedure.

The method appears applicable in all cases of female incontinence, except those that have sustained tissue loss or fistulization at the vesicourethral junction. The results in 16 women have been excellent.

Time and more experience with this procedure will prove the definitiveness of the technique.

### References

1. Marshall, V. F., Marchetti, A. A., and Krantz, K. E.: Correction of stress incontinence by simple vesicourethral suspension. Surg. Gynec. Obstet., 1949, 88, 509.
2. Gaker, L. B., Smith, K. M., and Helfman, H.: Preliminary report on modified vesicourethropexy. J. Urol., 1961, 85, 781.

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## Patients Needed for Clinical Center Study of Lupus Nephritis

The coöperation of physicians is requested in a new study conducted at the Clinical Center by the National Institute of Arthritis and Metabolic Diseases designed to further evaluate the effectiveness of corticosteroids in the treatment of lupus nephritis.

The conventional dosage of corticosteroids used to control systemic manifestations of systemic lupus erythematosus (SLE) often fails to arrest progression of the renal lesion. Prolonged use of large doses of corticosteroids (50–60 mg. prednisone daily), however, has been effective in controlling the nephritis in selected cases. Since high dosage of the drug often produces severe side-effects, moderate dose therapy, if effective in controlling the renal lesion, would be preferable. The major objective of the present study is to compare the relative efficacy of high dosage (50 mg.) with moderate dosage (20 mg.) corticosteroid therapy.

This type of study requires a carefully selected group of patients. The diagnosis of SLE must be definite and supported by a positive L.E. preparation. Laboratory evidence of renal involvement is essential but the BUN should not exceed 30 mg./100 ml. Patients with bleeding disorders, severe thrombocytopenia, psychotic episodes, advanced osteoporosis, and peptic ulcers are not suitable for this study. In addition, patients who are receiving high doses of steroids cannot be accepted.

Those selected will be studied at the Clinical Center for several weeks. On completion of the baseline studies, the patients will then be started on a particular dosage of prednisone (20 to 50 mg.) and after a period of observation returned to the care of their private physicians who will receive a complete narrative summary. Follow-up studies are often desirable but these supplement, rather than substitute for, visits to patients' home physicians.

Physicians interested in having their patients considered for admission to this study should write or telephone Dr. Joseph J. Bunim, Clinical Director, or Dr. F. Paul Alepa, Acting Assistant Chief of the Arthritis and Rheumatism Branch, National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, Bethesda, Maryland 20014; telephone: (Dr. Bunim) 49-64181 or (Dr. Alepa) 49-63374.

# The Calibrated Uterine Curette

**EDWARD E. GAHRES, M.D.**

*Associate Attending, Department of Obstetrics and Gynecology, Washington (D.C.) Hospital Center*

James Marion Sims and Theodore Gaillard Thomas are credited for having introduced, in the latter part of the nineteenth century, the uterine curettes which are presently universally utilized for exploration of the uterine cavity. The only significant changes made to date to the commonly used curettes are a serrated cutting edge and a malleable shaft. A recent valuable modification has been conceived and devised by S. N. Albert, M.D., Director, Anesthesiology Research Laboratory, Washington Hospital Center, which seems to fill the need for a curette that can serve also the purpose of a Simpson uterine sound.

The Albert modification consists in calibrating the shaft of the standard uterine curette. Indentations 1 cm. apart are made along the shaft of the curette. The 5, 10 and 15 cm. markings from the tip are heavily dented to facilitate recognition. The length or depth of the uterine cavity is determined from the tip of the curette to the distance marked along the shaft (figure 1).

The curette has been used successfully to measure the depth of the uterine cavity prior to removing products of conception. It has proven useful in determining the length of a partial uterine septum and the size of submucous fibroids. The calibrated curette would be of particular advantage in detecting immediately a perforation of the uterus as it occurs by showing a sudden measurable increase in penetration of the curette. This would eliminate the need for removing the curette and probing the uterine surface with a sound which may in turn inadvertently perforate the intact myometrium.

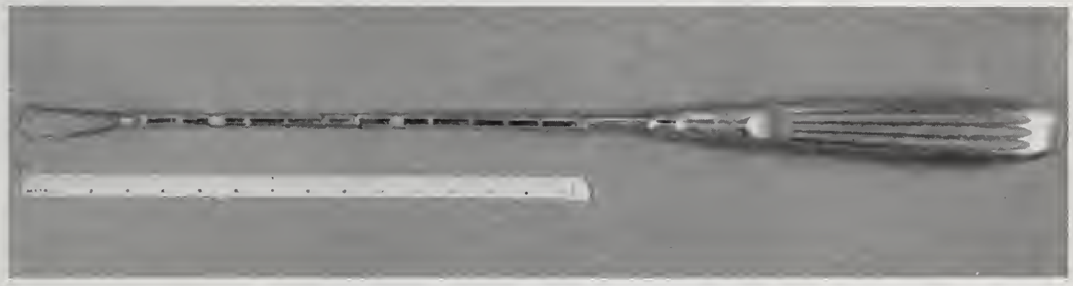

**FIG. 1. Uterine curette with Albert calibration.**

I wish to thank Dr. Albert for giving me the opportunity to evaluate the possible advantages of a calibrated uterine curette.

# Doctor, remember!

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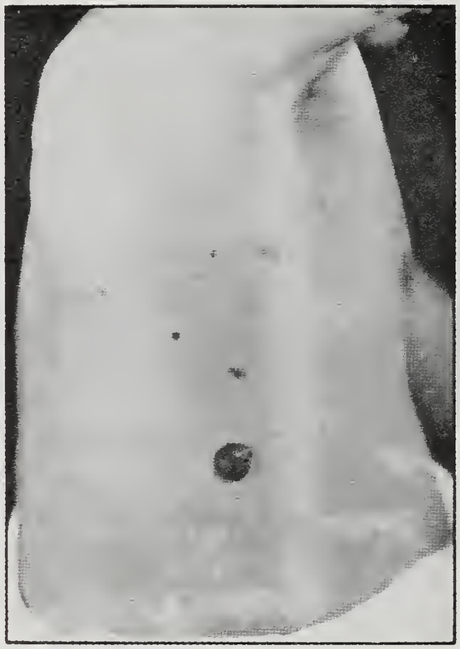

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# PRESIDENT'S PAGE

## PHYSICIANS AND HOSPITALS

Over 25 years ago a prominent Washington surgeon who was dedicated to the finest traditions of medicine told me that private practice had nothing to fear from Government control so long as every physician would take care of all of his patients regardless of their ability to pay. Today we see more and more patients who are able to pay being treated by hospitals. When I was first elected President-elect I remember several doctors telling me that the practice of medicine by hospitals may well present a far greater threat than does Government.

Because of the many new and different problems arising between physicians and hospitals your Executive Board this year created a Committee on Hospital Relations with the very capable Maurice Protas as Chairman. This Committee is well on its way to becoming one of the important Society committees.

Recently I read the Report on Physician-Hospital Relations prepared by the Committee on Medical Facilities of the Council on Medical Services of the AMA. This report first takes note of the trend toward the appointment in hospitals of full-time (salaried) chiefs of staff, heads of clinical departments, directors of medical education, directors of outpatient and emergency departments, and physicians to provide care ordinarily provided by interns and residents, and finally the utilization of closed-panel prepayment medical care programs by hospitals.

It reviews AMA policy since 1930, which has been consistent in opposing the corporate practice of medicine and the relegation of the medical profession to the status of technicians, as well as the sale of professional services by a corporation for the profit of the corporation.

The report discusses in detail the growing interdependency of patient, hospital, and third parties (prepaid voluntary insurance programs, closed-panel plans, group practice plans and labor unions). The growing interest of labor unions in supporting and developing hospital-based panels providing a full range of medical services, both inpatient and outpatient, is included in the report.

The Committee reviewed the growing expansion of hospital function leading to the point where the hospital is endeavoring to become the logical focus for all-inclusive care, embracing diagnosis and treatment of outpatients, rehabilitative and chronic care, and home care. Increasing numbers of hospitals are providing space for the examination and treatment of outpatients and are constructing physicians' office buildings adjacent to hospitals. In some cases renting of office space is a requisite for staff privileges.

Developments that threaten greater regulation of hospitals and medical care by public agencies are reviewed as well as the concern of legislative, judicial and special interest groups that voluntary control is inadequate. Area-wide planning of hospital facilities although necessary may well lead to state and Federal control of hospitals.

Reading this report in detail gives one a feeling of serious concern for the future of the private and free practice of medicine. To a significant degree we physicians have fostered the expanding role of the hospital in providing community health services. Perhaps this is all as it should be. But to those who think otherwise I say that these changes will come about more rapidly the more we divert our patients to hospitals on weekends and at night or refuse all house calls; the more we ask our telephone answering service to "cover" for us instead of assuming this as our own responsibility; the more frequently we push for more full-time salaried physicians to do what a dedicated and well organized staff should do for itself; the more we submit to the indignity of handing complete control of our private patients to the intern and resident; and the less interest we show in hospital costs to patients and third-party intervention.

If this is the early sounding of free medicine's death knell, then each of us who witnesses the death of some traditional privilege in free practice should not wonder "for whom the bell tolls." It tolls for you and me.

Edward W. Nicklas

## To Our Polio Volunteers—Many Thanks

The success of the Mass Poliomyelitis Immunization Program in the District of Columbia and surrounding counties must be credited to the hundreds of physicians, pharmacists, Public Health nurses, doctors' wives, and lay personnel who volunteered their services at the feeding stations in schools and hospitals, principally, during the 3 clinic days, April 19, May 17, and June 14, and during the 3 make-up sessions held on each of the Saturdays following. To all who gave so generously of their time and talents, we express our sincere appreciation; our thanks go also to those who volunteered their services for stand-by assistance.

Marvin C. Korengold, M.D.
*Chairman, Committee on Poliomyelitis*

Edward W. Nicklas, M.D.
*President, The Medical Society of the District of Columbia*

Following is a list of the members of the D. C. Medical Society who participated in distributing the Sabin oral polio vaccine to the people in the District of Columbia:

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T. Crandall Alford
Seymour Alpert
William S. Anderson
Irvin H. Ardam
Victor L. Assevero
Alfred Baer
Samuel M. Bageant
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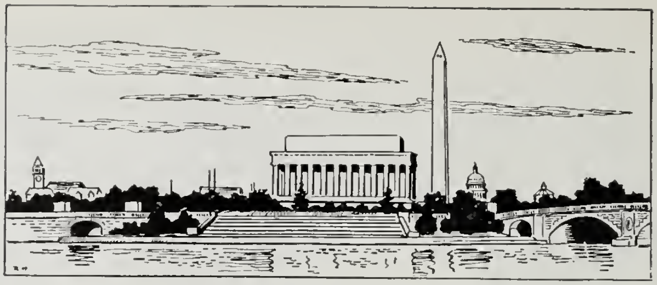

# EDITORIALS

## Metropolitan Planning to Accelerate Disability Services

What human and economic price must Greater Washington pay for its fragmented, scattered services to the disabled?

Persons who have given serious thought to problems of handicap have long recognized the need for pin-pointing and harmonizing the wide array of local rehabilitative programs now offered through more than 125 facilities, including hospitals, clinics, and social welfare agencies. The Metropolitan Rehabilitation Council was recently established in the belief that these goals can best be achieved through free and voluntary enterprise. It is intended to reinforce the efforts of all groups and professions serving the physically, mentally, and emotionally handicapped of Greater Washington.

The Council grew out of a major 1960 report of the area's medical societies. One strong recommendation was to set up a central rehabilitation planning council. Through close collaboration between the medical societies and the National Capital Area's Health and Welfare Council, a 2-year grant was obtained from the Meyer Foundation to start the Rehabilitation Council in September, 1963. Its Board of Directors is separate from that of the Health and Welfare Council and exercises major policy and planning responsibilities.

A number of pathways are being opened to further the 2-fold aim of improved program coördination and smoother referral. The first is an inventory of rehabilitation resources for the disabled of Metropolitan Washington, covering medical, social, educational, vocational, and other key services. The initial goal of this project is to generate a reliable, up-to-date and specific listing of available services, their geographic distribution, the jurisdictions they serve, and the disability groups eligible to receive them. As physicians, nurses, and other health personnel may have particular need for brief but accurate information about the many nonmedical organizations serving the handicapped, findings might be worked into a convenient directory as an aid to prompt, proper referral.

The Council's second project is a pilot study to determine how services are utilized by the handicapped with job problems. Illustratively, when illness or injury disrupts a person's work career, what are the factors that support or block efforts to find help from community resources? How are are these experiences seen by help-seekers and the organizations to which they turn? The vocational area was chosen because it is a crucial one for many people in Washington, but the study could have broader implications. Findings may partially explain why the disabled do (or do not) apply for the services they objectively need and why they "fall between the cracks" or succeed in reaching appropriate aid; they may also suggest methods to fortify and promote more effective, better utilized patterns of service.

Still another approach is to encourage or initiate interagency collaboration in service fields already identified as presenting problems. For example, the Council is participating in discussions of Metropolitan-wide need for sheltered workshops. One important feature of planning is to define and incorporate the medical component of such services through active participation by local physicians, and this is now taking place. In the not too distant future a more inclusive evaluation of the role of medical personnel and services in nonmedical social welfare agencies might be launched with profit.

A fourth aspect of Council work is to provide consultation and assistance to practitioners, hospitals and agencies on matters in the Council's

*Opinions expressed in contributions to the Editorial Section are those of the writers and do not necessarily reflect the views of the Medical Society of the District of Columbia*

field of special competence. A number of physicians and agencies have already drawn upon the Council for these purposes. Thus, the Council wishes to make itself useful in dealing with the tangible, day-to-day issues of direct services, program evaluation, staff development, financing and research in rehabilitative care.

The Council welcomes questions or comments, and it hopes to stimulate further interest in upgrading community services for the disabled.

HERBERT S. RABINOWITZ
*Director, Metropolitan Rehabilitation Council, Health and Welfare Council of the National Capital Area*

## Don't Fool with a Foul Breath

THIS ARTICLE may start out as a dissertation on the anatomy, the histology and the physiology of the mouth, but although these phases are discussed and are important in the understanding of the subject, the main subject of this article is halitosis. To understand halitosis, or foul breath, its causes and its treatment, one must know something of the intricate workings of the mouth.

What are the most frequent causes of a foul breath? onions? garlic? tobacco? alcohol? These are the most common extrinsic causes. Some of these odors may be very offensive to many people, but to others they are just a "run-of-the-mill" breath.

This article on halitosis concerns itself not from extrinsic causes per se but from causes within the oral cavity and to stimuli outside the oral cavity which affect the processes within the mouth. Television ads stress breath-sweeteners of every description; dentists stress the advisability of filling cavities, removal of tartar, and removal of food particles. All of these precautions are important in the hygienic care of the mouth, but how important are all these precautions in the prevention of halitosis? They are admittedly related to some degree to foul breath, but they play a minor part in the cause of halitosis. Most cases of halitosis are caused by the chemistry of saliva itself.

Let us analyze the source, the function, and the contents of saliva. This solution comes into the oral cavity principally from the 3 large salivary glands, the parotid, the submaxillary, and the sublingual. The parotid gland secretes a watery juice, chiefly used to moisten the food; the submaxillary and the sublingual glands produce a sticky juice rich in mucus. These glands secrete as a result of reflex stimulation due to taste, smell, thought and sight. The functions of saliva are mechanical and digestive. Saliva aids mastication and swallowing, facilitates speech, helps dilute irritants, and cools excessively hot foods. The digestive action of ptyalin begins in the mouth but takes place mostly in the stomach and is concerned with the initial stages of hydrolysis of starch.

An individual may have an attractive mouth or he may have an extremely unattractive mouth, but whichever it is, it is one of the most important laboratories of the entire body. Anatomically speaking, it is a cavity marking the beginning of the long tube-like gastrointestinal system which receives food, partially digests it, prepares it for swallowing, and sends it on its way to the stomach. The tongue and the teeth are the mechanical instruments which grind and mix the food in the mouth, but the myriads of glands which line the mouth aid materially in the preparation of the food.

The saliva is a mixture of the secretions of the various glands. It is a viscous, colorless, opalescent liquid which contains water, mucin, some proteins, mineral salts, and an enzyme, ptyalin. Saliva also contains many desquamated squamous cells and salivary corpuscles. Most of the corpuscles originate in the follicles of the tongue and the tonsils, and are degenerated lymphocytes and granulocytes. The mucus or mucin contained in the saliva is an important protective agent. It is a slimy, viscid, tenacious substance with remarkable antiseptic action. It coats the surface of the mucous membrane of the entire digestive tract. It is believed that mucin is the agent which prevents autodigestion in the stomach, and that after death when the supply of mucin ceases the wall of the stomach is digested. Have you ever wondered why the stomach does not digest its own wall? This chemical action is believed to be prevented by mucin.

The entire surface of the mouth is lined with a mucous membrane which forms many outgrowths which increase the surface of the epithelium. The mucous membrane is provided with many crypts or small glands and invaginations. These smaller glands lubricate the surface of the mucous membrane. The many small glands of the mouth normally seem to secrete continuously.

The larger salivary glands, the parotid, the submaxillary and the sublingual glands, secrete only when mechanical, thermal, or chemical stimuli act upon the nerve endings in the oral mucous membrane. They also secrete as a result of reflex stimulation due to taste, smell, thought, and sight. All glands of the oral cavity have a system of branching excretory ducts. The mucous membrane of the mouth is similar to the skin; the epithelium is stratified squamous. These invaginations or pockets in the oral mucous membrane are important in the cause of halitosis.

The flow of saliva is continuous, and one of its very important functions is the bathing and lubricating of the delicate membranes of the mouth and throat as well as the teeth. Interfere with the constant flow of this important fluid and you get not only impaired digestion but a dryness of the mucous membrane and a stagnation of saliva with all of its accompanying unpleasantries. Have you had experience with cesspools? That is what the mouth becomes when the flow of saliva is curtailed. Immediately there is bacterial growth, sloughing of dead membrane cells, and disintegration of food particles and countless other ingredients, to cause the most foul-smelling mixture any cesspool ever had. In fact, mucin, one of the important ingredients of saliva, means slime. Dried saliva, whether on a flat surface or collected in a test tube and allowed to stand and dry, is one of the most offensive smelling substances one can ever imagine. It is the same when allowed to dry on mucous membranes in the mouth.

What causes a stagnation of saliva? What impairs the secretion of saliva? In 99 per cent of the cases it is not a diseased condition of the tissues. It is tension. The secretion of these sensitive glands is controlled by a complex system of nerves, and to a great extent these nerves are a part of the great sympathetic nervous system. You see food, you smell food, and your mouth "waters." The nerves which supply these glands have been told by other nerves, "Get busy; something is in the offing that will interest you." These nerves in turn tell the glands, and the glands get busy and secrete saliva. On the other hand, when you are under a strain in your work or you are excited, these nerves to the glands are neglected and become dormant; the secreting glands become dormant; your mouth and throat become dry, and hundreds of little dry pockets or semi-dry pockets containing saliva become just so many tiny cesspools, and the breath passing over these little "foul odor pots" becomes foul, and what do you have? You have plain, old-fashioned halitosis or bad breath.

A person may have perfectly normal sinuses, if such exist; he may have a mouth full of healthy teeth, but give him a dry mouth, from any cause, the most common of which is nervous tension, and you have what so many people have today, halitosis or bad breath. Will you not agree that we are a people of tension? No other people have ever been so tense. No other people have ever traveled at such a dizzy, breakneck pace, and hour after hour, whether housewife or debutante, executive or clerk, you are under tension, your salivary glands fail to secrete, and your breath becomes foul. You have all caught the breath of a sick person, one who has a temperature. His mouth is dry, and his teeth are dirty. This condition exists because the flow of saliva has ceased and putrefaction within the mouth has set in. The mucous membranes are dry, and saliva has dried on these membranes.

Every laryngologist who has operated on throat cases under local anesthesia has found that these patients have dry mouths. If nervous tension is not causing the dryness, preoperative medicine prescribed for the purpose of acting on the nerves that supply the salivary glands stops salivation, and practically 100 per cent of these patients have offensive breaths, because the mucous membrane in the mouth and throat is dry. This does not mean that an unhealthy dental condition or a postnasal drip doesn't add to this foul condition. Each one contributes, but that contribution would be minimized by free-flowing saliva. Do you have a foul breath? You may have halitosis and are not aware of it. You should not hesitate to ask someone, a close friend or a member of the family, and if you have a foul breath you should know about it and take steps to correct it. It can be corrected, and it is just as important to correct a foul breath as it is to correct some other bad habit or condition that may be offensive and antisocial.

Stress today is laid on body odors and deodorants. A body may smell as sweet as a rose, but let that dry-mouth body approach you and you catch a whiff of a dry, tension breath. Lord deliver you! The boss or the employee under strain leans over close to explain a matter, little realizing that his breath would "knock one down"; the attractive little miss, deodorized from head to foot, dressed to the nth degree, waiting for her date, but under tension, little realizes that the person with whom she comes in contact can hardly endure her breath. All these people are under a nervous strain, the saliva has stopped flowing, and these membranes are dry and offensive. They may not be diseased; they merely need moistening. Keep these membranes moist and you have eliminated a considerable percentage of halitosis. Then, if you have dental cavities or pools of foul-smelling stagnant saliva, or if you have a postnasal drip that is inclined to adhere to a dry membrane on the back of the throat, these areas will be bathed and freshened and kept moist by a steady flow of saliva. The free flow of saliva is not a cure-all; cavities in teeth should be eliminated, and sinuses when indicated should be treated along with postnasal drip. If the pharynx could be kept moist at all times the annoyance of a postnasal drip would be minimized and cease to be a problem.

There are perfectly harmless ways of assuring a flow of saliva sufficient to keep these membranes moist, and I can think of no more pleasant method than an occasional lozenge in the mouth, or better still a stick of gum. The late Emily Post did not approve this harmless habit, but is it worse, when you come right down to it, than cigarettes? Please do not think of the gum-chewer necessarily as a rude, uncouth violator of good manners. Gum-chewing on occasions when indicated for relaxation and for the relief of tension and for dry mouth and throat is specific, and I heartily prescribe it. Do you look down on the baseball pitcher who constantly chews gum on the mound? Certainly not, and he does it for this same reason, namely, for the relief of tension and for the stimulation of the flow of saliva. You do not have to keep gum in your mouth all day. An occasional stick or half a stick will do the trick. An innocent little stick of gum with its delightful flavor can neutralize most of the unpleasant odor of one's breath; it can stimulate the secretion of saliva, bathe and lubricate the membranes of the mouth and throat, aid digestion, both in the mouth and stomach, and eliminate in one master stroke much of this twentieth century evil, halitosis.

THOMAS R. REES, M.D.

## Franz Alexander—In Memoriam

THE DEATH OF DR. FRANZ ALEXANDER in Los Angeles, California, on March 8, 1964 was a deep loss to the medical profession. Although he spent his life as a psychoanalyst his contributions to psychosomatic medicine influenced every practitioner who had to deal with all those medical syndromes in which psychologic factors play an important role. His theories served to stimulate considerable controversy and, consequently, greater clarification of the etiology of these disorders. However, his greatest contributions were in the area of his greatest interest, psychoanalytic theory and treatment.

When psychoanalysis was introduced to the United States it was entirely a European product, discovered and developed in Vienna. Its theories were firmly established and the methodology of treatment rigidly formulated. Dr. Alexander played a large role in making psychoanalysis a medical discipline and in helping it take root in the American culture. He experimented with the methodology of treatment and proposed new and exciting theories regarding psychosomatic disorders. His contributions in this area were published in a book entitled "The Influence of Psychological Factors upon Gastrointestinal Disturbances." Later, his theories about peptic ulcer, spastic colitis and constipation were expanded into character types in which receptive factors or retentive and eliminatory factors played a major role. This new concept stirred up a great deal of research on the psychologic factors in these disorders.

In the area of psychoanalytic and psychotherapeutic treatment Dr. Alexander made his greatest contributions. In 1946, in a research project in Chicago, he formulated the concept of the "corrective emotional experience" as the crucial element in therapy. Prior to this psychoanalytic treatment was prolonged and rigidly organized. The couch was invariably used, as were inflexible time schedules and fixed rules for the conduct of the analyst. It was felt that the goal in therapy was emotional insight, which would result in a cure. Dr. Alexander experimented with the process by shortening it and using flexible scheduling to increase or decrease the patient's dependency and passivity. The analyst became more active and more involved in the treatment process. Dr. Alexander recommended that the analyst adopt an attitude directly opposite to that of the person who played a crucial role in the patient's life. The results were most striking and were reported in a book called "Psychoanalysis and Psychotherapy." Dr. Alexander concluded that learning and experiencing, as well as insight, were crucial to the cure of the neurosis. His theories have had a lasting effect on psychoanalytic treatment as it is practiced today, even though his precise recommendations may not be followed.

Dr. Alexander played an important role in the organization of psychoanalysis in this country, and at the time of his death he was President of the Academy of Psychoanalysis. He was a Past President of the American Psychoanalytic Association and Clinical Professor of Psychiatry at the University of Southern California.

Leon Salzman, M.D.

# Health Dept. Notes

### Concern with Nursing Homes

Nursing homes in the District of Columbia are licensed under regulations issued by the District Commissioners. Aftes licensing, these homes continue to receive periodic inspection by the D.C. Department of Public Health and other agencies of the District Government.

Nursing homes are those facilities which offer care or treatment to 5 or more patients; personal care homes have no more than 4 patients. Regulations affecting both are similar but a bit less strict for the latter. Both are usually called nursing homes.

There are also domiciliary care homes which provide meals and lodging but no nursing care; these are licensed in the District as boarding houses.

Nursing homes may be nonprofit (usually fraternal or religious), proprietary, or Government. Operators of the homes may limit and define the type of patient they can accept, although public (Government) homes have admission policies set by law.

These limitations may include degree of illness, nursing care required, diet needs, acceptability of welfare cases, and whatever other factors affect the homes' operation.

The nature of each home is largely determined by the owner or operator; some are specialized and take only mental or only ambulatory or other categories. Many will accept a more general type of patient.

The D.C. Department of Public Health is required to review staffing and facilities of all nursing homes in the District to ensure compliance with the law. This is a responsibility of the Inspections and Standards Division of the Bureau of Nursing.

In addition to this continuing inspection the Department has established an active Project for Nursing Home Improvement, financed by a grant from the U.S. Public Health Service.

This Project is now in its first year. It seeks to raise the level of patient care and treatment by increasing the skills of the homes' staff and personnel. Through the Project the Department offers consultation and assistance to individual home operators, gives demonstration training and courses for home personnel, encourages the use of community resources (Public Health and Visiting Nurses, welfare and recreation, library, volunteer and therapy aides), and generally seeks improvement in patient services.

Most physicians have occasion to make referral to a nursing home in their course of practice, either directly for a certain patient or indirectly as a 'recommendation.' It is intended that Health Department programs for nursing homes be increasingly useful to the practitioner in the District. We welcome interest from the medical profession in this important matter.

Murray Grant, M.D., D.P.H.
*D.C. Director of Public Health*

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Dr. Edward W. Nicklas, President, called the membership meeting to order at 8:25 p.m. on June 17, 1964. The purpose of this special meeting was to vote on 3 items of business which were set forth in the agenda previously sent to each member of the Society. These items were:

1. Recommendations of the Ad Hoc Committee on Smoking and Health
2. Recommendations regarding the new Society Headquarters
3. Resolution concerning the "right of a physician to dispose of his income."

The Chairman introduced the members who were seated on the platform. They were: Dr. Victor R. Alfaro, Chairman of the Executive Board; Dr. Raymond T. Holden, Senior Delegate to the AMA; Dr. Frank S. Pellegrini, Chairman of the House Committee; Dr. Herbert P. Ramsey, Parliamentarian; Mr. Warren Magee, Legal Counsel, and Mr. John d'Epagnier, architect for the building.

### Smoking and Health

The Chairman called upon Dr. George William Ware, Chairman of the Ad Hoc Committee on Smoking and Health, to comment on the following recommendations which had been proposed by his Committee and approved by the Executive Board:

a. To urge every member physician to reëvaluate his or her smoking habits in public places so as to establish a good example for patients and the public;

b. To urge a similar reëvaluation of smoking in their offices for the same reason;

c. To urge by letter that all hospitals and medical facilities consider the discontinuance of the sale of cigarettes in the facility and a program to discourage cigarette smoking by physicians and employees in that part of the facility having patients or available to the public; and

d. To publicize the above via newspaper, radio and television media.

Dr. Ware pointed out that physicians and medical facilities should be "good examples" if any progress is to be made toward getting people to give up smoking and to influence young people not to start the habit. Dr. Robert L. Price, Deputy Chief of the Cancer Control Program, Department of Health, Education, and Welfare, and Dr. Paul F. Jaquet, a member of the Committee, were also asked to comment briefly on the recommendations. They did so, in support of the recommendations, along with 7 other members. A motion made and seconded in favor of the recommendations was unanimously approved.

### New Society Headquarters

The Chairman asked Dr. Alfaro to present the recommendations of the Executive Board on this subject. Dr. Alfaro called attention to the meeting of this Society, May 20, 1963, when the Board was given authority (a) to negotiate the sale of the present property at 1710–18 M Street, N.W., and (b) to negotiate the purchase of another property for the purpose of building a single-purpose Medical Society building.

Dr. Alfaro also referred to the report made at the Annual Business Meeting in November, 1963, when the Board notified the members that their property had been sold for a million dollars and a new building site selected at 2005–07–09 Eye Street, N.W. The construction of a single-purpose Medical Society building is now in the planning stage, he said. The House Committee and the architect have reviewed and revised many floor plans to arrive at the most practical arrangements of floor space. He then asked Dr. Pellegrini, Chairman of the House Committee, to describe the proposed building.

Dr. Pellegrini had prepared slides that were thrown on the screen to illustrate the proposed plans.

The first slide showed one of 2 similar floor plans for parking about 40 cars. These floors would be below ground level.

The next slide showed the main floor facing the park on Eye Street, with the car entrance on the right and the stairway on the left. The lobby would have a circular stairway and a space 24 feet in depth for public exhibits. Back of this was a library-lounge and behind the library-lounge, an auditorium seating over 300 persons. The auditorium will have removable chairs so it can be converted to a dining area. This floor also would have a kitchen and facilities for serving up to 125 or 150 people.

The second floor will house the Society's offices and the Medical Bureau. All of the Society's business activities would thus be concentrated on 1 floor.

The third floor will provide space for 4 meeting

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rooms, available by elevator. The front room will be the Board room, the back room will be soundproofed for preparing tapes for TV or radio, and the 2 center rooms will have a folding door separating them so as to expand the seating space from 75 persons to 100 or 150 persons. At the back of this floor is approximately 2,100 square feet, an area that may be rented to an allied group until such time as it is needed by the Society.

The fourth floor, with over 6,000 square feet of unfinished loft space, will assure provision for any further needs of the Society. Again, this could be rentable space until such time as it may be needed.

Dr. Pellegrini said the 4-story building, primarily for Society use and probably ultimately all for Society use, would serve "to retain our public image as a Medical Society and not as a business."

The Committee with the assistance of the architect had estimated an overall cost of approximately $250,000 above the funds derived from the sale of the present property to pay for the new location and building. The Committee believes that this can be fully repaid from the rental income derived from the area on the third and fourth floors, intended for future expansion, and should be accomplished in about 10 years. This would leave the Society with additional income and/or space for expansion. Dr. Pellegrini moved that the plans as presented be approved.

Several members of the House Committee spoke briefly in favor of the plans. In answer to an objection that only 4 stories would be built instead of the maximum permitted height, Dr. Alfaro and Mr. Magee pointed out that the House Committee and Board believed it unwise for the Society to go deeply in debt in order to secure a building much higher than present and any foreseeable needs would require.

Dr. Pellegrini's motion was seconded and approved unanimously.

### Right of a Physician to Dispose of His Income

The Chairman read a resolution proposed by the Executive Board for introduction to the AMA House of Delegates at its meeting in June during the AMA Convention in San Francisco. The resolution is as follows:

Whereas, The House of Delegates in June 1963 at Atlantic City, New Jersey, adopted a statement to the effect that "the AMA record itself as opposed to any system or program by which any part of an intern's or resident's salary is paid out of fees collected by the attending physician under any type of medical-surgical insurance coverage"; and

Whereas, At the Clinical Session in Portland, Oregon, December 1963, the House of Delegates partially rescinded this June 1963 action by adopting that portion of the report of the Reference Committee on Insurance and Medical Service Resolution (5,C-63) which stated that "Any assignment or donation of fees, whether from the individual's own resources or from some prepayment insurance plan, shall be, without any pressure or coercion from other sources, solely at the discretion of the attending physician"; and

Whereas, In adopting the above, this House of Delegates also approved that portion of the report of the Reference Committee which stated "your committee further believes that the last resolved (5,C-63) is a reaffirmation of the right of the individual physician to exercise, at his own discretion, the disposition of his income"; and

Whereas, The adoption of the above report supersedes any previous action of this House of Delegates on similar subjects; *therefore be it*

*Resolved*, That this House of Delegates reaffirm the right of a physician to exercise his discretion in assigning the fees which he may receive in any manner which he should see fit, as long as he is without pressure or coercion from other sources, by rescinding the action taken in Atlantic City in June 1963.

Dr. Holden was called on to discuss the resolution. He outlined some of the background and the reasons for its introduction at this time and moved for its adoption. After some further discussion the resolution was passed by majority vote.

# Annual Report on Finances and Administrative Services of Medical Service*

In 1963 we took in more money and paid out more benefits for more subscriber-patients who were treated by more Participating Physicians than ever before. The numbers are impressive.

Payment for physician services in 1963 amounted to $22,500,000, an amount which would provide each Participating Physician a payment of about $8,000. Also, during the year Medical Service added $767,000 to reserves, to establish a total reserve of $5,840,000. This reserve would provide payment for 2.9 months of claims and operating expense, which approximates the reserve position recommended for Blue Shield Plans by the National Association. It should be noted, however, that additions to reserves from subscription income are reduced from the preceding year, and a substantial portion of our addition to reserves resulted from income from investments. For your information I should like to take this opportunity to summarize the balance sheet of Medical Service as it compares the year 1963 with 1962:

| | 1962 | 1963 | Increase |
|---|---|---|---|
| TOTAL ASSETS | $12,835,919.98 | $15,621,365.92 | $2,785,445.94 |
| Total Liabilities | 7,762,806.97 | 9,781,154.57 | 2,018,347.60 |
| Reserve for Medical Service | 5,073,113.01 | 5,840,211.35 | 767,098.34 |
| TOTAL LIABILITIES AND RESERVES | $12,835,919.98 | $15,621,365.92 | $2,785,445.94 |

Our comparative operating statements for 1962 and 1963 are as follows:

| | 1962 | 1963 | Increase |
|---|---|---|---|
| INCOME: | | | |
| Earned Subscription Charges | $21,581,809.69 | $24,692,059.38 | $3,110,249.69 |
| Income from Investments | 187,202.70 | 257,266.93 | 70,064.23 |
| TOTAL INCOME | $21,769,012.39 | $24,949,326.31 | $3,180,313.92 |

| | 1962 | 1963 | Increase |
|---|---|---|---|
| EXPENSES: | | | |
| Claims | $19,544,270.95 | $22,488,771.09 | $2,944,500.14 |
| Operating Expense | 1,441,066.47 | 1,749,021.94 | 307,955.47 |
| TOTAL EXPENSE | $20,985,337.42 | $24,237,793.03 | $3,252,455.61 |
| TOTAL RESERVE ADDITION | $803,674.87 | $767,098.34 | $(36,576.53) |

While our additions to reserves were not as great in 1963, Medical Service is in a sound financial position, and our reserve position is becoming more stabilized due to experience rating and rates for the Federal Employee Program which are designated to provide a fixed addition to reserves.

The numbers of subscribers enrolling in Medical Service, both through the Federal Employee Program and our local contract arrangements, have been impressive and gratifying. At the close of the year there were 943,000 persons protected by Medical Service against the cost of medical expense, of which 452,000 were covered under the Federal Employee Program and 491,000 were covered under our own non-Federal contracts. Enrollment was increased in 1963 by 49,000 participants over the preceding year. In a report presented by the Enrollment Committee of the National Association of Blue Shield Plans, Medical Service moved up from fifteenth to fourteenth in the rank of Blue Shield Plans in the total number of persons enrolled. We are fourth in the percentage of population enrolled by any Blue Shield Plan and first in the number and percentage of subscribers enrolled in the Federal Employee Program.

With 491,000 Federal Employee subscribers covered under the Supplemental Benefits portion of the Federal Employee Program, and 107,000 persons covered under our local Comprehensive

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* Presented at the Annual Meeting of Participating Physicians of Medical Service of the District of Columbia, May 13, 1964.

Contracts, we find that about 54 per cent of all subscribers are protected under Major Medical or Supplemental Benefits. Payment of physician services under this type of coverage has increased tremendously the amount paid to local physicians for services and charges which are not covered under the subscriber's basic contract.

The numbers of physicians participating under agreements with Medical Service increased during the year to a total of 2,840 (2,676 M.D.'s, 83 D.S.C.'s, 71 D.D.S.'s, and 10 D.O.'s). The continuing participation and support of physicians participating in Medical Service is our strength.

Under an operating agreement between Group Hospitalization, Inc. and Medical Service of D.C., GHI acts as the agent of Medical Service in such administrative functions as the enrollment of subscribers, billing and collecting subscription payments, and the payment of claims. In 1963 the Claims Department processed approximately 614,000 Medical Service claims, a record of more than 2,400 claims each working day. The approval and payment of claims in such large numbers have not been accomplished without difficulty. There have been delays and problems of answering incoming queries concerning those delays, and heroic efforts have been made to overcome them. New trunk lines have been installed to accommodate greater numbers of incoming calls, and additional persons have been hired and are being trained to process claims and claims inquiries at a peak load. Also, changes are being made in computer management designed to reduce delay in payment of claims. The electronics computer has been employed by GHI for many facets of the Federal Employee Program, and it is a proven success. Within the next few months, as soon as new internal procedures and programming have been thoroughly tested, the enrollment and claims records of all subscribers will be stored on magnetic tape. This storage system will enable us to have access to claims' records at all times and will improve considerably our ability to render prompt and accurate service to physicians and subscribers.

Despite the trend toward enrollment in contracts offering benefits for a wide variety of physician services, all of which tend to increase the volume of claims, with a resulting increase in the operating cost, the percentage of earned subscription income attributable to operating cost is well below the average for all Blue Shield Plans. Our operating cost in 1963 amounted to 7.1 per cent of earned subscription income, whereas the national average was 8.96 per cent. Other comparisons with national averages show that our reserves, which are the equivalent of 2.9 months of claims and operating expense, are slightly below the national average of 3.14. For the payment of physician services, Medical Service used 92.2 per cent of subscription income, whereas the average Blue Shield Plan utilized 91.56 per cent of subscription income for that purpose.

Over the years Medical Service has consistently remained in a favorable position in comparison with most Blue Shield Plans with respect to the percentage of the population enrolled, the amount of reserve per contract, and the percentage of income charged to operating expense. I predict that these favorable conditions will prevail during the coming year, that they will result in a payment of $25,000,000 for physician services in 1964, and that we will have an enrollment of more than 1 million subscriber-participants at the end of this year. Ladies and gentlemen, you are an integral part of a multimillion dollar business. It was founded with your strength, it exists by your strength, and we look forward to your continued support.

George B. McGovern
*Executive Vice President*

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## Washington, D. C.—Company Town, U. S. A.

The capital of these United States, Washington, D. C., is a 69-square-mile enclave with a population larger than 10 of the states.

The founding fathers' hope that Washington would become a major port and center of commerce was never realized. It has always been a "company town" whose major industry, the Federal Government, employs 47 per cent of the City's labor force and owns 43 per cent of the land. Yet, so huge and widespread is the Federal Establishment that only 11 per cent of its 2,482,000 civilian employees work in the District of Columbia and its suburbs. Over 91 per cent of these Washington-based workers are employed by the Executive Branch, over 8 per cent by the Legislative, and a fraction of 1 per cent by the Judicial.

What is perhaps the City's second largest "industry" centers around the constitutional right to petition the Government, which, in the last half century, has become a thriving business. There are 7,000 lobbyists registered with Congress, and many of the 1,014 associations based in Washington are to some extent concerned with this matter. All of the 130 member unions of the AFL-CIO are represented, and 41 have headquarters in the city.

Fifty-seven per cent of Washington residents were born outside the City, coming from every state in the Union. The 1960 Census revealed that 8 states supplied 38 per cent of the City's population. Migration from Virginia, North Carolina, South Carolina, and Georgia, totaling 180,312, was 78 per cent nonwhite. In contrast, migration from Maryland, Pennsylvania, New York and West Virginia, amounting to 104,702, was 72 per cent white. There were even 3,280 escapees from sunny California and 481 from Hawaii.

Washington is 57 per cent nonwhite, the only major city in the United States where whites are a minority. Ninety-seven per cent of the nonwhites are Negroes.

Average per capita income in the city was $3,219 in 1962, higher than any state except Nevada. The money is more evenly distributed between white and Negro than in many of the states. In 1959, when latest figures were available, nonwhite family income was greater than the overall average for 14 states.

### The City and the Ring

The District is surrounded by a chain of satellite cities and a suburban ring, consisting of Montgomery and Prince Georges Counties in Maryland, and Arlington and Fairfax Counties, plus the City of Alexandria, in Virginia. The city and the ring together are classified by the Bureau of the Census as one of the 216 Standard Metropolitan Statistical Areas (S.M.S.A.) in the U. S.

With a current population of 2,200,000, it is the second fastest growing of the Nation's 15 largest S.M.S.A.'s (surpassed only by Los Angeles). The rapid growth has occurred wholly in the suburban ring, to which the City has been losing white residents for the past 2 decades. Washington's population reached an estimated peak of 900,000 in 1943 and declined to 763,956 by 1960. Since then there has been an estimated gain of 34,000.

While city population was declining, suburban population more than quadrupled, increasing from 304,894 in 1940 to 1,237,941 in 1960. With 62 per cent of its people living in the suburbs, the Washington Metropolitan Area ranks fourth among the 15 largest S.M.S.A.'s in the Nation in its proportion of suburbanites to city dwellers. Newark, Boston and St. Louis are ahead.

The District draws a large daytime population from the ring. In 1960 the Census found that 44 per cent of the employed suburban residents worked in the City. Washington had a larger proportion of incoming commuters than New York or Los Angeles and was third behind Cleveland and Milwaukee among the 15 largest cities in the Nation.

During the 1950's suburban growth received a substantial impetus from the migration of white people from the city, mainly younger families with children. The net migration to the ring is estimated to have been only 12,000 during the 1940's; this number swelled to 209,000 in the following decade.

The City's Negro population grew from 280,440 in 1950 to 411,612 in 1960, due to heavy migration, mainly from the South, and to a high Negro birth rate (31.5 in 1962 as compared to a 16.9 white birth rate).

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* From Population Profile, released, March 16, 1964, by Population Reference Bureau, Inc., 1755 Massachusetts Avenue, N.W., Washington, D. C.

## In Sprains, Strains and Muscle Spasm, 'Soma' Compound

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### An Exodus of Youth

From the end of World War II until 1954, the year of the Supreme Court decision on school segregation, public school enrollment of white students declined only slightly in the District. The migration of students to the suburbs has resulted in an average decline of 8 per cent a year since then. Currently, 86 per cent of the students are nonwhite.

White people who remain in the City tend to be older than average. The median age is 36 years for males and 43 for females, as compared with a national median of 30 and 29, respectively. It is no coincidence that the median age of a Washington Government girl is 42.

Once past the teenage years, the unmarried of both sexes face a peculiar situation in Washington. A bachelor girl between 20 and 29 has, statistically speaking, a surplus of male companions. There are 1.36 single men for every single woman in this age group (or 27,070 to 19,847). But waiting can be dangerous. The fractional male keeps shrinking throughout his thirties and vanishes when he reaches 40. In fact, from 40 onward there are 1.58 unmarried women to every unmarried man.

### A Look Ahead

Since 1878 Washington has been administered by a 3-member Board of Commissioners, appointed by the President and confirmed by the Senate. Its real boss, however, is Congress, as represented by the House District Committee, which keeps watch on the City's budget, transportation, morals and other matters. There has been a renewed interest in home rule in recent years, and a bill (H.R. 9128), currently in the House District Committee, provides for an elected mayor, city council, and a nonvoting delegate to the House of Representatives. Passage this year is considered doubtful.

On occasion the Congress uses the District as a guinea pig for legislative experimentation. On December 30, 1963 it included in the appropriation bill for the District an item of $25,000 for "birth control devices and information." This is the first such enactment by the Congress.

It is easier to predict how many people will be living in Washington in 1980 than the type of government they will be living under. Although the City's housing is close to capacity at present, there are only 12,524 people per square mile, less than one-sixth the density of Manhattan Island. Since the Government-owned area consists mainly of parks and nonresidential structures, the effective density is considerably higher. An apartment building boom would be needed to house any substantial population increase.

Raymond F. Clapp, demographic consultant to the National Capital Planning Commission, predicts a District population of about 810,000 in 1980. Fifty-nine per cent will be nonwhite, and white migration to the suburbs "will be reduced substantially." The major change, he thinks, will be that 516,000 nonwhites will live in the suburbs, compared to 100,000 today.

Robert C. Cook, President of the Population Reference Bureau, points out that "practically all the big metropolitan areas in the United States sprawl across county and state lines. The urban complex should be an administrative unit. No agency exists today to act for the metropolitan area as a whole. The creation of 'authorities' marks a beginning in the field. The Port of New York Authority, for example, operates across state lines in New York, New Jersey and Connecticut.

"Greater Washington has this urban affliction in an aggravated form, being administered by 2 states, 4 counties, 1 city, and the U. S. Government. Since the District of Columbia is caught in a species of Congressional civic paralysis, it is unlikely that the Federal City will pioneer in developing the kind of uniform municipal government needed by all of the huge cities of modern America."

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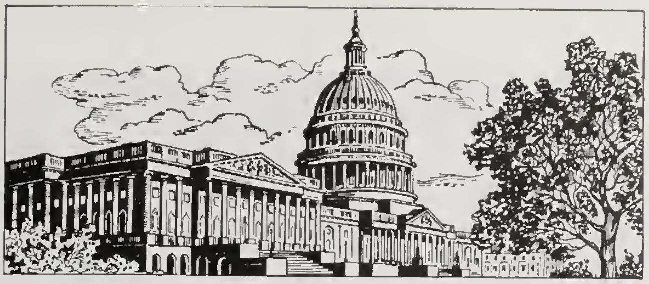

# NEWS & PERSONALS

## Summary of Executive Board Actions

**The Executive Board of the Medical Society of the District of Columbia** held a mid-monthly meeting, June 15, in the Society's building. Dr. Victor R. Alfaro, Chairman, presided at the meeting. Present were Drs. C. Willard Camalier, Jr., Karl C. Corley, J. Spencer Dryden, Harold M. Hobart, Raymond T. Holden, Edward W. Nicklas, Josephine E. Renshaw, Paul R. Wilner, and Mr. George Cooley, Secretary. Present by invitation were Dr. Milton M. Greenberg, Chairman of the Medical Staff of Children's Hospital, and Dr. Robert Parrott, Director of Children's Hospital. The meeting was called to order by the Chairman at 7:30 p.m.

**Board of Credentials:** The Executive Board approved the following recommendations of the Board of Credentials:

*Active Members*

Richard Lee Fields, 1150 Connecticut Avenue, N.W.
Nelson Gates Goodman, 2121 Pennsylvania Avenue, N.W.
Herbert Curtin Haynes, 4965 Rockwood Parkway, N.W.
Richard Schoenfeld, 2246 North Burling Street, Arlington, Va.
Henry Joseph Starr, 1746 K Street, N.W.
David Arthur St. Martin, Child Center, Catholic University

*Associate Member*

Leslie Howard Fenton, George Washington University School of Medicine

*Resignation*

*Active:* George W. Metcalf

**Children's Hospital:** Drs. Greenberg and Parrott were present to discuss the financial difficulties of Children's Hospital. Dr. Greenberg presented a statement in behalf of the Medical Staff of the Hospital which noted briefly the advances that have been made by that institution in the quality of its medical care, in the post-graduate training of resident physicians, and in the excellent research that has been stimulated as a natural by-product. Its closure for financial reasons would be a tremendous loss to the community, the statement said, and would leave Washington as "the only major city in the country lacking an institution with the life-saving and help-giving capacity of the present institution." The Board approved the statement, with minor changes, and also gave approval to mailing it to the membership with a note attached, that the staff of Children's Hospital would appreciate having any members who so desire sign and return it to the Hospital with the understanding that the statement so endorsed might be used by Children's in trying to solve its financial problems.

**Committee on Hospital Relations:** This Committee, which has been concerned with hospital staff appointments, requested the Executive Board to pass a resolution to the effect that the appointment of a physician to a hospital staff should be based on his medical qualifications and ethical standards without discrimination as to race, creed, or color. The Board concurred on the following statement as a policy of this Society: "Membership in the Medical Society of the District of Columbia is based upon a physician's medical qualifications and ethical standards, without consideration of race, creed, or color. The Executive Board, therefore, believes that this should apply to all fields of medical care in the District of Columbia."

**Dial-a-Dietitian:** In response to a communication from the D. C. Dietetic Association the Board agreed to permit flyers describing the Dial-A-Dietitian program to be included in general mailings to the Society, provided it was not done more than twice a year.

**AMA Clinical Session:** At the request of the

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Washington Convention and Visitors' Bureau the Board was favorable to inviting the American Medical Association to hold its Clinical Session in Washington in 1967, or the first available year thereafter.

**Medical Service of D.C.:** President Nicklas suggested a change in procedure on matters of fees and policy between the Medical Society and Medical Service of the District of Columbia. Now and in the past, Medical Service has dealt directly with the Sections of the Society on matters of fees and policy. He thought it would be advantageous to all concerned if Medical Service directed all such matters to the Executive Board, which in turn would refer them to the proper Sections, the Sections to report back to the Board, and the Board, in turn, transmit recommendations to Medical Service. A motion was made and carried that such a recommendation be forwarded to Medical Service of D. C. and to the Sections of the Society. There was 1 dissenting vote.

Dr. Nicklas also suggested that the Board recommend to Medical Service of D. C. the employment of a part-time physician who would assume the responsibility of presenting cases to the Review Board. This physician would be prepared to explain all medical technicalities related to the cases to be reviewed. The Board approved this suggestion.

**Medical-Dental Economic Bureau:** The Secretary reported, for the information of the Board, that the response from the membership to this proposed billing service showed that 65 doctors and dentists had indicated an immediate interest, and 75 indicated an interest in the near future.

**Tenants for New Building:** The Secretary reported that several organizations had inquired in reference to space in the new building. At his suggestion the voluntary health agencies will be canvassed so as to know which ones might be interested and what they would be willing to pay.

The next meeting of the Board was set for Monday, June 29.

# Meetings

Some 2,000 delegates and guests are expected to attend the **17th Annual Meeting of the American Association of Blood Banks** at the Shoreham Hotel, August 25–28. On the opening day there will be an all-day technical seminar on blood component therapy. Subsequent sessions will be devoted to papers and panel discussions on many other facets of blood banking and hematology, including blood preservation, the leukocytes, the ABO group, RH antigens and antibodies, transplantation, blood group antigens and antibodies, coagulation, genetics, physico-chemical aspects of immunologic reactions, compatibility testing, and transfusion practices.

Dr. G. C. Liggins, who teaches in the Post-Graduate School of Obstetrics and Gynecology at the University of Auckland, New Zealand, is featured as a guest speaker, August 27. Dr. Liggins helped pioneer the development of amniocentesis as a guide to therapy for women isoimmunized to the Rh factor. His work with Dr. A. W. Liley led to the development of methods which allow for interpretation of the presence of bile pigments in amniotic fluid as an indication of the severity of hemolytic disease afflicting the fetus in utero.

**Dr. George F. Schmitt,** President of the **Florida Diabetes Association,** extends a cordial invitation to Washington physicians to attend its **Annual Seminar on Diabetes and Related Endocrine Disorders,** to be held at the Balmoral Hotel, Miami Beach, Fla., September 30, October 1 and 2.

Members of the faculty of the School of Medicine, University of Miami, will participate in the program. Guest speakers will include:

Eugene Clerkins, M.D., Consultant, Metabolic Division, Lahey Clinic, Boston
Robert Greenblatt, M.D., Professor of Medicine, University of Georgia
William Kirkley, M.D., Assistant Director, Clinical Research Division, Eli Lilly and Company, Indianapolis, Indiana
Leo P. Krall, M.D., Senior Consultant, Joslin Clinic and New England Deasoness Hospital, Boston
William Locke, M.D., Consultant, Metabolic Diseases, Division of Medicine, Ochsner Clinic, New Orleans
G. J. O'Donovan, M.D., Vice President in charge of Research and Medical Affairs, Ames Company, Elkhart, Indiana
Raymond Randall, M.D., Consultant, Metabolic Diseases, Division of Medicine, Mayo Clinic, Rochester, Minn.; Assistant Professor of Medicine, Graduate School, University of Minnesota

The registration fee, which is $20.00, should be sent to Dr. Schmitt at 30 S. E. Eighth Street, Miami 32, Florida. Because of space the number of registrants is limited to 125. Dr. Schmitt will also furnish a complete program upon request.

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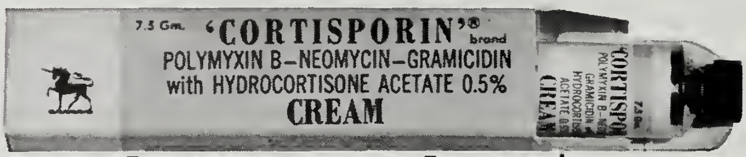
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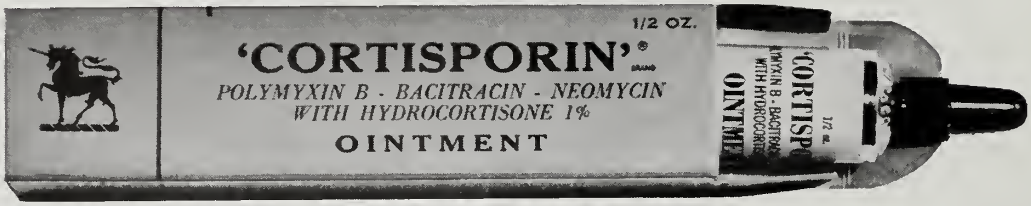

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In a smooth, white, water-washable vanishing cream base with a pH of approximately 5.0. Inactive ingredients: liquid petrolatum, white petrolatum, propylene glycol, polyoxyethylene polyoxypropylene compound, emulsifying wax, distilled water, and 0.25% methylparaben as preservative.

*Available:* In tubes of 7.5 Grams.

OINTMENT—*Ingredients:* Each gram contains 'Aerosporin'® brand Polymyxin B* Sulfate 5,000 Units; Zinc Bacitracin 400 Units; Neomycin Sulfate 5 mg. (equivalent to 3.5 mg. Neomycin Base); Hydrocortisone 10 mg. (1%).

In a special white petrolatum base.

*Available:* In tubes of ½ oz. and ⅛ oz.

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*Indications:* Wherever inflammation or infection occurs and is accessible for topical therapy.

*Contraindications:* These drugs are contraindicated in tuberculous, fungal or viral lesions (herpes simplex, vaccinia and varicella).

*Caution:* As with other antibacterial preparations, prolonged use may result in overgrowth of nonsusceptible organisms, including fungi. Appropriate measures should be taken if this occurs.

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# General News

**The American Cancer Society, District of Columbia Division,** held its Annual Membership Meeting in the Nurses' Auditorium of Providence Hospital, June 11. The St. George Medal and citation for outstanding contributions to cancer control were presented this year to Dr. Paul B. Cornely, Head of the Department of Preventive Medicine and Public Health at Howard University College of Medicine, and to Mrs. Lelah C. Rodenberger, Vice President of the Cured Cancer Club of Washington.

Twelve volunteers were awarded plaques denoting 10 years of continuous service. They included Drs. Charlotte P. Donlan, Robert S. Jason, and Jack E. White.

Among those newly elected to the Board of Trustees were Dr. Peter D. Comanduras and Dr. Lorin E. Kerr. Other members of the D. C. Medical Society who were reëlected to the Board included Drs. Stafford W. Hawken, C. Roger Kurtz, Joseph W. Peabody, Jr., John F. Potter, John C. Rose, Jack E. White, Theodore Winship, William P. Herbst, Jr., and Calvin T. Klopp.

At the business meeting of the Board of Trustees following the annual meeting Mr. Leonard J. Emmerglick, Washington attorney, was elected President of the Society to succeed Dr. Harold W. Krogh. He will take office on September 1. Dr. Kurtz was elected a Vice President.

The following physicians were named to the Executive Committee, in addition to the officers: Drs. Cornely, Jason, Ernest A. Gould, Howard S. Madigan, and John Parks.

**The District of Columbia Academy of General Practice** elected officers at a meeting at the Kennedy-Warren, May 26. Reëlected to office were Dr. William Robert Perkins, President, and Dr. Harry Sacks, Treasurer. Dr. Russell M. Tilley is President-elect; Dr. Claudine M. Gay, Vice President; and Dr. John W. Price, Secretary.

**Georgetown University** announces the appointment of **Arthur K. Saz, Ph.D., as Professor and Chairman of the Department of Microbiology and Tropical Medicine** of the Schools of Medicine and Dentistry. The appointment will become effective, September 1.

Dr. Saz holds a Master of Science degree from the University of Missouri and a Ph.D. degree from Duke University. Since 1950 he has worked principally as a research scientist at the National Institute of Allergy and Infectious Diseases at NIH. In 1957 he was made Assistant Chief of its Laboratory of Infectious Diseases.

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**The Allergy Foundation of America** has awarded 15 scholarships of $600 each, to be used for intensive research and clinical training in the field of allergy, to promising second- and third-year medical students in the United States and Canada. Included among the 15 are 2 from the District of Columbia.

Mrs. Juanita A. Archer, of Brandywine, Md., a third-year medical student at Howard University, will conduct research on "Comparative Eosinophil Levels of Blood and Nasal Mucosal Secretions in Children with Allergic Diseases of the Respiratory Tract" under the direction of Dr. Roland B. Scott, Head of the Department of Pediatrics at the University.

Mr. M. Wayne Falcone, of Troy, N. Y., a second-year student at Georgetown University School of Medicine, will do research on the subject, "Use of $I^{131}$ in Immunological Studies of Sera from Allergic Patients." His work will be supervised by Dr. Richard J. Feinberg, Chairman of the Department of Pediatric Allergies at Georgetown University Hospital.

**Dr. Jean K. Weston** has been named **Director of the Department of Drugs of the American Medical Association** and Secretary of its Council on Drugs. Dr. Weston, who was formerly Director of Medical Affairs for Burroughs Wellcome & Co., assumed his new duties on June 15. He holds a medical degree from Temple University School of Medicine and a Ph.D. degree in neuroanatomy from the University of Michigan.

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# Personals

**Dr. William M. Trible,** Washington otolaryngologist, has been appointed District of Columbia Chairman of the Deafness Research Foundation. This Foundation is a national, voluntary, nonprofit organization that promotes scientific research into all types of ear disorders, alerts the public to the seriousness of deafness, and is currently conducting a Nation-wide public education campaign urging people with ear disorders to bequeath their inner ear structures to medical research. The Foundation has its headquarters in New York City at 366 Madison Avenue (10017).

**Dr. Reginald S. Lourie,** Director of the Department of Psychiatry at Children's Hospital, received the Alumni Medallion for Distinguished Service to American Medicine from the Downstate Medical Center of the State University of New York at commencement ceremonies, June 10.

The same evening, his son, Seth Lourie, received his medical degree from the Center. His father, Dr. I. I. Lourie, was an alumnus of the Long Island College Hospital, the predecessor of the Long Island College of Medicine, which became the Downstate Medical Center of the State University of New York.

**Dr. W. Montague Cobb,** who takes office this month as President of the National Medical Association, was honored by the Capital Press Club, June 13, when he was cited for his editorials in the *Journal of the National Medical Association,* of which he is Editor.

**Dr. Virginia P. Beelar** received due recognition recently from the Arthritis and Rheumatism Association of Metropolitan Washington by being named the first honorary director of its Board of Directors. This organization, an agency of the United Givers Fund, supports 6 arthritis clinics in the Washington area and 2 research laboratories, one at George Washington and another at the Georgetown Medical Centers.

Dr. Beelar served for 2 terms on its Board of Directors. She has also served as Director of the Arthritis Clinic of the Washington Hospital Center.

**Dr. I. Phillips Frohman** was honored at the meeting of the District of Columbia Dental Society, June 9, by the presentation of a Certificate of Appreciation for his scientific contributions to the D. C. Dental Society *Journal.*

In June **Lt. General Leonard D. Heaton,** Surgeon General of the Army, received the degree, Doctor of Humane Letters, from Brandeis University. General Heaton is an Honorary member of the D. C. Medical Society.

**Dr. Maxwell Boverman** has been elected to the Board of Directors of the Washington, D. C. Area Council on Alcoholism, Inc.

**Dr. Alexander M. Burnett and Dr. Ross J. Clark** were certified by the American Board of Obstetrics and Gynecology, May 1, 1964.

## Drug Research Board

R. Keith Cannan, D. Sc., Chairman of the Division of Medical Sciences, National Academy of Sciences-National Research Council, released the following statement as to the purposes of the Drug Research Board following its initial meeting in Washington, January 20–21, 1964:

"The Drug Research Board was established late in 1963, under contract with the National Institutes of Health, in the belief that the field of therapeutic research was in flux and that the Academy-Research Council was in a position to make, in the national interest, a significant contribution to the orderly progress of the field.

"The Board is designed to be a deliberative and advisory body. It will seek to maintain a broad surveillance of the policies, principles and practices that influence the course of therapeutic research in all its phases and will provide a forum in which the problems, responsibilities and opportunities of investigative medicine, industry and Government can be ventilated and directed toward a coherent and productive national and international effort.

"The Board does not expect to assume operational responsibilities for the conduct of research but will be prepared to bring to the attention of the scientific community problems urgently requiring research.

"The Board will be available for advice to the various health agencies of Government and other organizations with responsibilities related to research on drugs. The Board will not, however, expect to undertake the evaluation of data on the safety and efficacy of specific drugs unless judgments on these involve broader issues that affect the conduct of therapeutic research."

Dr. William S. Middleton, of the University of Oklahoma, is Chairman of the new Board. Among the 16 other members are Dr. George E. Schreiner, Professor of Medicine at Georgetown University, and Dr. Hugh H. Hussey, Director of the AMA's Division of Scientific Activities.

Establishment of the Drug Research Board within the National Academy of Sciences-National Research Council was a major recommendation of the Commission on Drug Safety, which held its final session in Chicago, January 17–18, 1964, and is specifically stated in the final report of the Commission.

# Letters to the Editor

### Blue Shield and Free Choice of Physician

Freedom of choice of physician is a principle most doctors vigorously support. Most agree that it is a vital part of the doctor-patient relationship and that its abridgment is one of the greatest threats of completely socialized medicine. Curtailment in free choice of physician has been the basis of strong medical opposition to many plans. Why, then, have we allowed "our own" plan, Medical Service of the District of Columbia, to curtail freedom of choice of physician?

Physicians with whom I have discussed this have been astounded. But it is true. Its proof is found in Section 4 of the Surgical-Medical Certificate of Medical Service of the District of Columbia. Under only 2 conditions will the Corporation pay for services rendered by a non-Participating Physician. The first occurs when the patient (subscriber) is outside the area served by Participating and Coöperating Physicians. This is clear, but possibly unnecessary.

The second circumstance is far more restricting. In an emergency, services of a non-Participating Physician will be covered only if the subscriber ". . . presents evidence satisfactory to the Corporation that he was unable to obtain the services of a Participating or a Coöperating Physician. . . ." This is followed by the extent of indemnity the Corporation will assume. There is no provision for payment to a non-Participating Physician in the Washington, D. C. area in the absence of an emergency.

Why, in an emergency, should a patient call anyone but the doctor of his choice? Should it be his responsibility, while acutely ill, to ascertain his physician's relationship to Medical Service of D.C.?

This same acutely ill patient is also required to "furnish evidence . . ." that he was unable to obtain the services of a Coöperating Physician. This category is defined in the same certificate as "any practitioner of the healing arts other than a doctor of medicine. . . ." In order to choose his own non-Participating physician,

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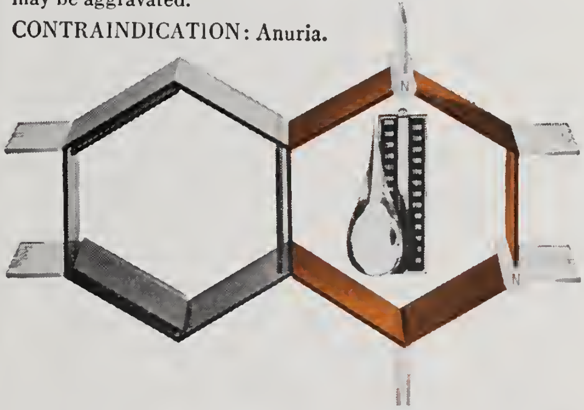

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then, this patient must first try to call a "Coöperating" osteopath or surgical chiropodist!

The local Blue Shield Plan has, in effect, limited the choice of physician by its subscribers. It is a large group, with almost 3,000 Participating Physicians, but closed to non-Participating Physicians except for these 2 specific conditions. Upon inquiry we are told that this provision is never used. If not, why is it in the contract? Is it inserted as a means of forcing doctors to become and remain Participating Physicians for fear of losing their patients? Why cannot the contract simply state that the subscriber will be paid directly if he chooses a non-Participating Physician?

Intelligent people will not listen long to words which belie the actions of the speakers. We do favor full freedom of choice of physician; let us demand that this freedom be guaranteed in the Medical Service contract.

Robert R. Montgomery, M.D.

# Obituaries

## Bernard W. Leonard, A.B., M.D.

(1897–1964)

April 13, 1964 was Dr. "Benny" Leonard's 67th birthday. After spending the morning seeing patients, he was given a fine birthday party with cake, candles and affection by his devoted office staff. He was then off to the opening ballgame. Riding home from the ballgame he died suddenly, a common mode of death for those with aortic stenosis.

Dr. Leonard received his undergraduate education in the city of his birth at Richmond (Va.) College and his M.D. degree at Johns Hopkins in 1923. His graduate training was obtained at the Johns Hopkins Hospital and later at Vanderbilt Hospital in Nashville, where he went with a cadre of Hopkins physicians to help establish a modern medical school. There, with Dr. Tinsley Harrison, he did some of the early, fundamental work on the effect of digitalis on cardiac action. This work led to an abiding interest in and broad knowledge of cardiovascular disease. In this field he continued to excel as practitioner and consultant.

After a brief period of practice in Bridgeport, Connecticut and work as student physician at Yale, he came to Washington to practice internal medicine in 1929. Here, he practiced until his death.

Dr. Leonard was a senior attending physician at the old Garfield Memorial Hospital and was on the staffs of the Washington Hospital Center and Doctors Hospital. He was a member of the American Medical Association, the American Heart Association, the Osler Society, and the Clinico-Pathological Society, which he had served as President. He had been an Active member of the Medical Society of the District of Columbia since 1931 and had served on many of its committees.

BERNARD W. LEONARD, M.D.

He is survived by his wife, Mrs. Ruth Horton Leonard, of the home address, 2853 Ontario Road, N.W., and 2 sons, Dr. John H. Leonard, of Yarmouth, Maine, and Dr. Bernard H. Leonard, a dental surgeon, of York Harbor, Maine. He also leaves a brother, Russell Leonard, of Richmond, Va., and a sister, Mrs. Mary L. Cobb, of Richmond.

"Benny" Leonard was a warm, genial friend to all who knew him; he was loved and respected by colleagues and patients alike. To his patients he gave unstintingly of his skill, his sympathy and himself. In truth he was The Good Doctor.

Worth B. Daniels, M.D.

## Walter Augustine Wells, A.M., M.D., F.A.C.S.

(1870–1964)

Dr. Walter A. Wells, physician and author, died, June 10, 1964 after a brief illness at his home, 3059 Q Street, N.W.

Dr. Wells was born in Bladensburg, Md., March 6, 1870, to a physician, Dr. Charles

Augustine Wells, and Mary Hyatt Wells. He attended Washington schools and Columbian (now George Washington) University. After receiving his Master of Arts and his Doctor of Medicine degrees from Georgetown University, the latter in 1891, he interned at the U. S. Marine Hospital in Chicago and continued his studies at the Chicago Policlinic. He also studied abroad in 1894–95 at the University of Vienna.

Dr. Wells began his long career in medicine in 1895. For many years he was surgeon in charge of the Ear and Throat Department at Garfield Memorial Hospital and Associate Attending Physician at Episcopal Eye, Ear and Throat Hospital. He was also on the faculty of Georgetown University for many years as Professor of Laryngology.

During World War I he served with the American forces in France and Germany and returned with the rank of Lieutenant Colonel in the Army Medical Reserve Corps.

He retired from practice about 20 years ago.

Dr. Wells was a Fellow of the American College of Surgeons, a Life member of the Medical Society of the District of Columbia, and a member and Past President of the Clinico-Pathological Society. He belonged to the Chevy Chase Club, the Metropolitan Club, the Cosmos Club, and the Society of Colonial Wars.

Among his writings were several books—"A Thesaurus of Medical Words and Phrases," "The Common Head Cold," and "A Doctor's Life of John Keats."

His wife, Mrs. Frances Gibson Wells, preceded him in death. He is survived by 2 daughters, Mrs. Philip Randolph and Mrs. Marian W. Roberts, both of the home address.

## Carl Berg, M.D., F.A.C.S.

(1897–1964)

Dr. Carl Berg, eminent orthopedic surgeon, died, June 18, 1964, after a long illness, at his home, 4114 Davis Place, N.W.

Dr. Berg was born in Boston, Mass., April 1, 1897. After beginning his career as a structural engineer he turned to medicine. He graduated *cum laude* from Tufts University School of Medicine in 1931. After 2 years in general practice he trained in orthopedic surgery at the New York Orthopedic Dispensary and Hospital, and in 1940 he was a Fellow in Orthopedics at the Lahey Clinic. In 1941 he moved to Washington, where he was associated in practice with the late Dr. Custis Lee Hall for many years and later with a group of orthopedic surgeons. He was in solo practice at 915 19th Street, N.W. when he retired a year ago because of ill health.

Preceding his retirement Dr. Berg was Chief of Orthopedic Surgery at Doctors Hospital, senior attending surgeon at the Washington Hospital Center, senior advisory staff member at Children's Hospital, and a member of the courtesy staffs of other hospitals in Washington and vicinity. He was consultant to the Surgeons General of the Army and Navy, and he was on the faculty of George Washington University School of Medicine as Assistant Clinical Professor of Orthopedic Surgery.

Dr. Berg joined the D. C. Medical Society in 1943. He was a diplomate of the American Board of Orthopedic Surgeons, a Fellow of the American Academy of Orthopedic Surgeons and the American College of Surgeons, a founding-member of the Russell Hibbs Society, and a member of the World Medical Association, the George M. Kober Society, Southwestern Surgical Congress, Washington Orthopedic Club, and the Hippocrates-Galen Society.

He leaves a brother, Ernest A. Berg, of Longmeadow, Mass., and 2 sisters, Mrs. Eva Hogquist, of Newton, Mass., and Mrs. Esther Pease, of Everett, Mass.

## Grace D. Linklater Stone, B.A., M.D.

(1900–1964)

Dr. Grace L. Stone, Chief of School Health Services for the District of Columbia, died suddenly, June 5, 1964, at Anne Arundel General Hospital in Annapolis, Maryland.

A native of Portland, Oregon, Dr. Stone was born, February 11, 1900. She graduated from Reed College in 1922 and from the University of Oregon School of Medicine in 1925. She interned at Kingston Avenue Contagious Disease Hospital and at Babies Hospital, both in New York City.

Dr. Stone began her practice in the District of Columbia in 1929. She served first as examining physician at Children's Tuberculosis Clinic, and was on the staff of Children's Hospital, beginning in 1933. For 25 years she served in the District Public Health Department, first as director of maternal and child health clinics, and later as Director of the Southwest Health Center.

Dr. Stone was an Active member of the Medical Society of the District of Columbia from 1934 until 1960, and a member of the American Public Health Association, the American Cancer

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Society, and the D. C. Women's Medical Society.

She leaves her husband, William T. Stone, of 5 Greenbriar Lane, Annapolis; a son, William Wallace Stone, and a daughter, Mrs. Robert Franks, also of Annapolis.

### Brachial Angiography—Smyth et al

(*Continued from page 371*)

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### Blood Viscosity—Albert, Jain and Shadid

(*Continued from page 377*)

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* AMA Council on Foods and Nutrition: The Regulation of Dietary Fat, *JAMA* 181:411-423 (August 4, 1962).
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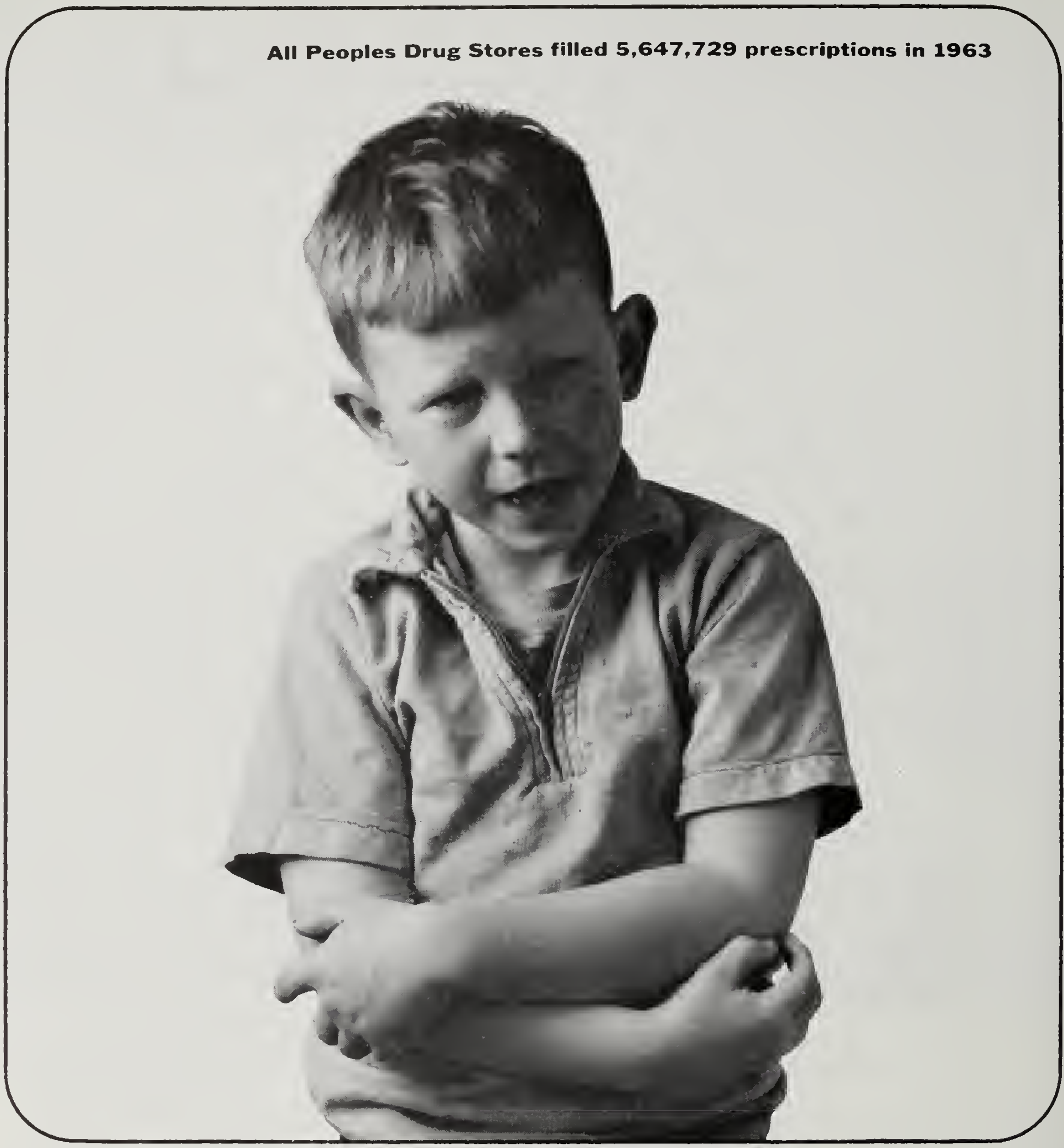

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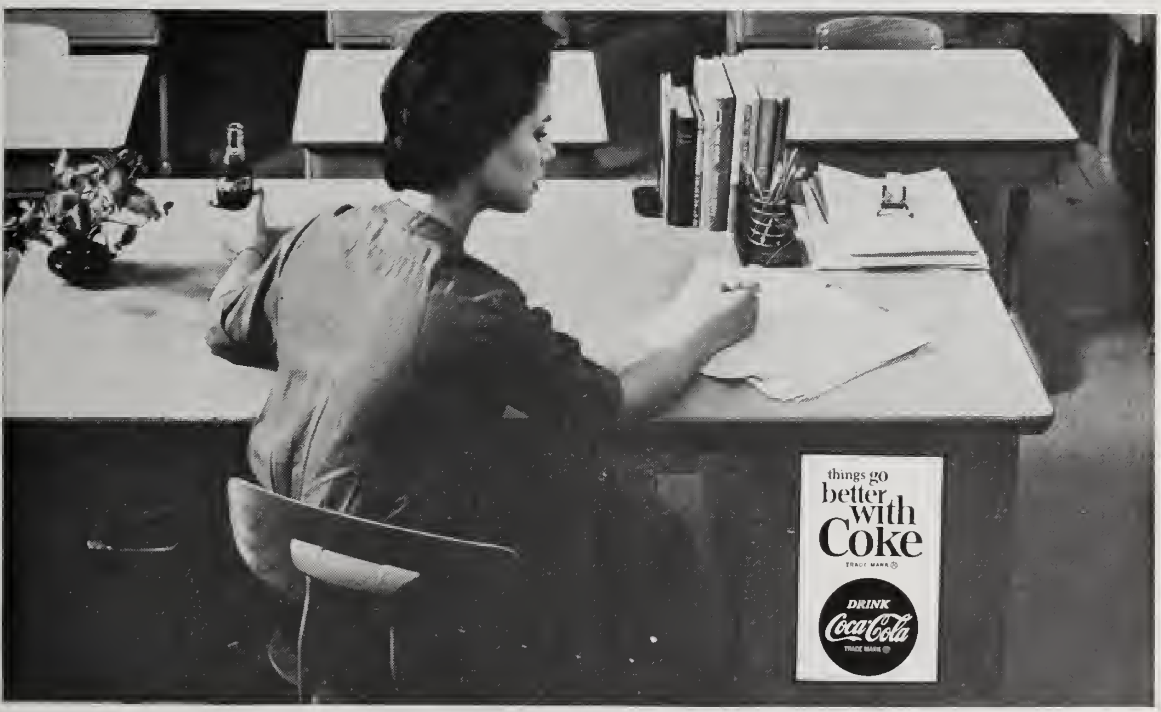

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**August 25–28: 17th Annual Meeting, American Association of Blood Banks. Shoreham Hotel, Washington. Address: Miss Lois J. James, 30 North Michigan Avenue, Chicago 2, Ill.**

September 9–12: International College of Surgeons (North American Federation). Chicago. Address: Dr. Walter F. James, *Executive Director*, 1516 Lake Shore Drive, Chicago 10, Ill.

September 10–12: American Association of Obstetricians and Gynecologists. The Homestead, Hot Springs, Va. Address: Dr. Clayton T. Beecham, *Secretary*, 3911 Vaux Street, Philadelphia 29, Pa.

September 16–18: American Association of Medical Clinics. Americana Hotel, Bal Harbour, Fla. Address: Dr. R. S. Condie, *Secretary*, Palo Alto Medical Clinic, 300 Homer Avenue, Palo Alto, Calif.

**September 21-25: Postgraduate Course No. 1, American College of Physicians: Current Clinical and Laboratory Investigations in the Rheumatic Diseases. National Institutes of Health Clinical Center, Bethesda, Md. Address: Dr. Edward C. Rosenow, Jr., Executive Director, 4200 Pine Street, Philadelphia, Pa. 19104**

September 25–26: American Medical Writers' Association. Benjamin Franklin Hotel, Philadelphia. Address: Mr. James E. Bryan, *Executive Secretary*, 2000 P Street, N.W., Washington, D. C. 20036

October 5–9: American College of Surgeons. Conrad Hilton Hotel, Chicago. Address: Dr. John P. North, *Director*, 55 East Erie, Chicago 11, Ill.

October 8–10: American College of Physicians. Hotel Biltmore, Los Angeles. Address: Dr. Edward C. Rosenow, Jr., *Executive Director*, 4200 Pine Street, Philadelphia, Pa.

**November 9–13: American College of Chest Physicians: Postgraduate Course No. 5. Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs. International Inn, Washington. Address: Executive Director, ACCP, 112 East Chestnut Street, Chicago, Ill. 60611**

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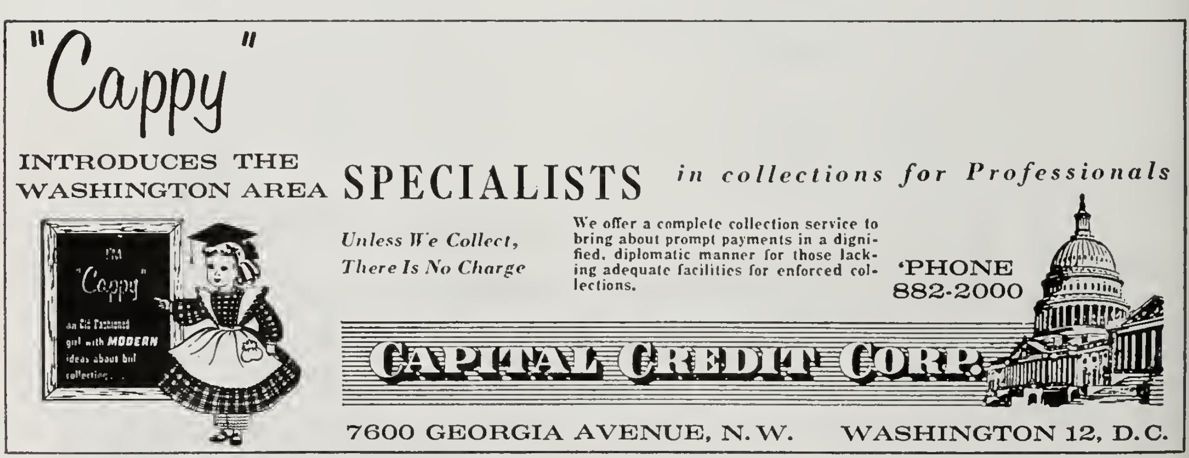
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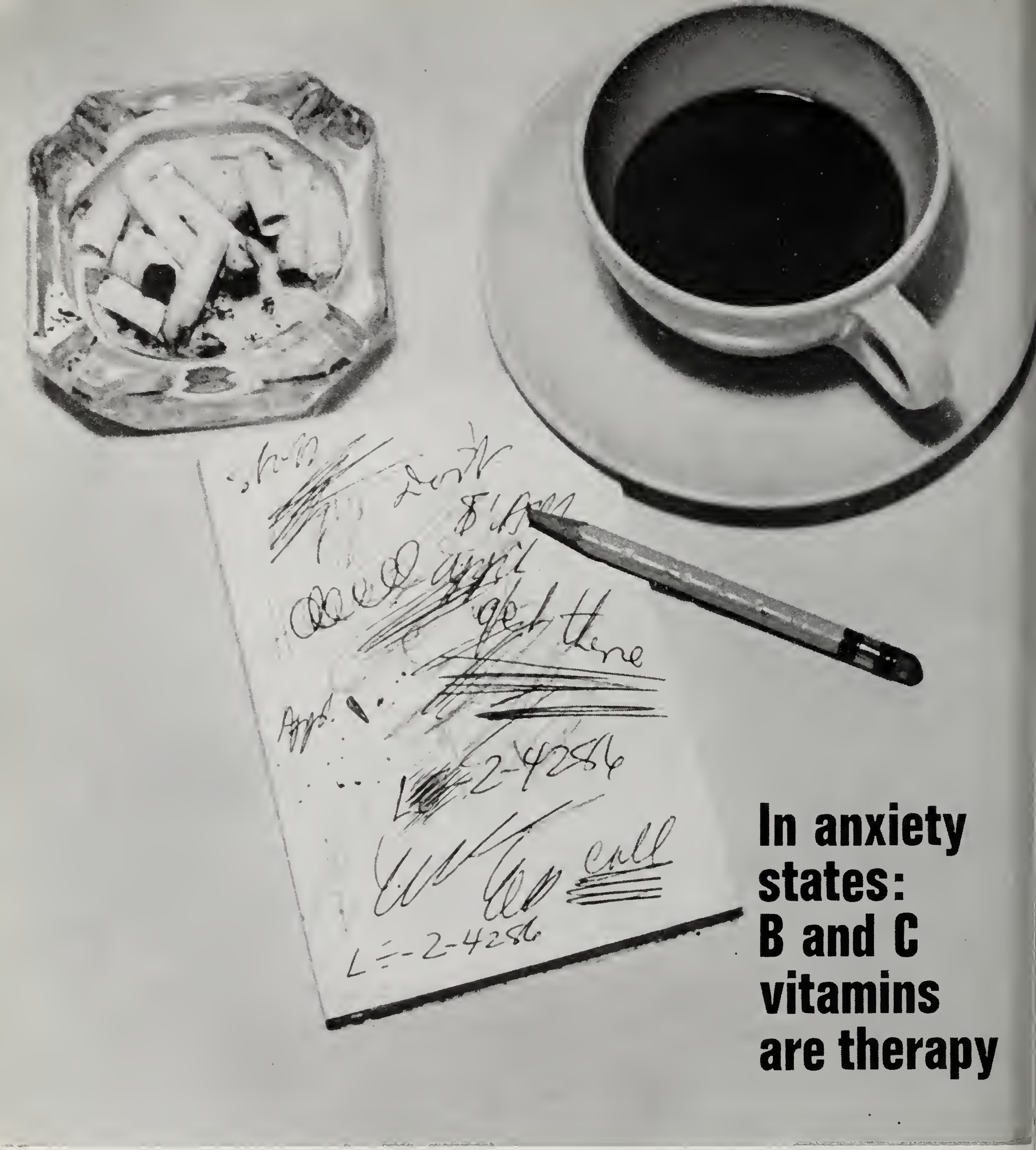

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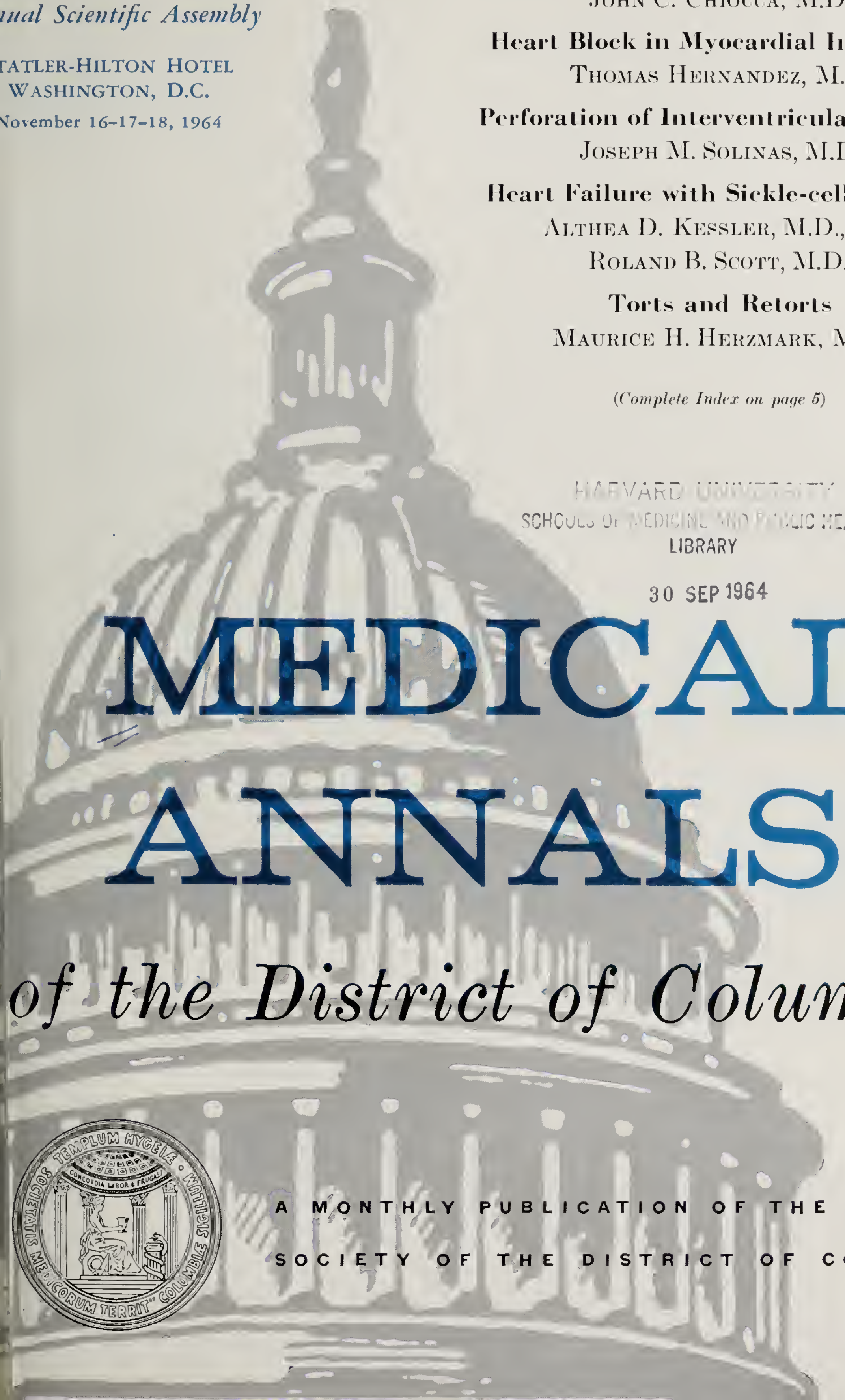

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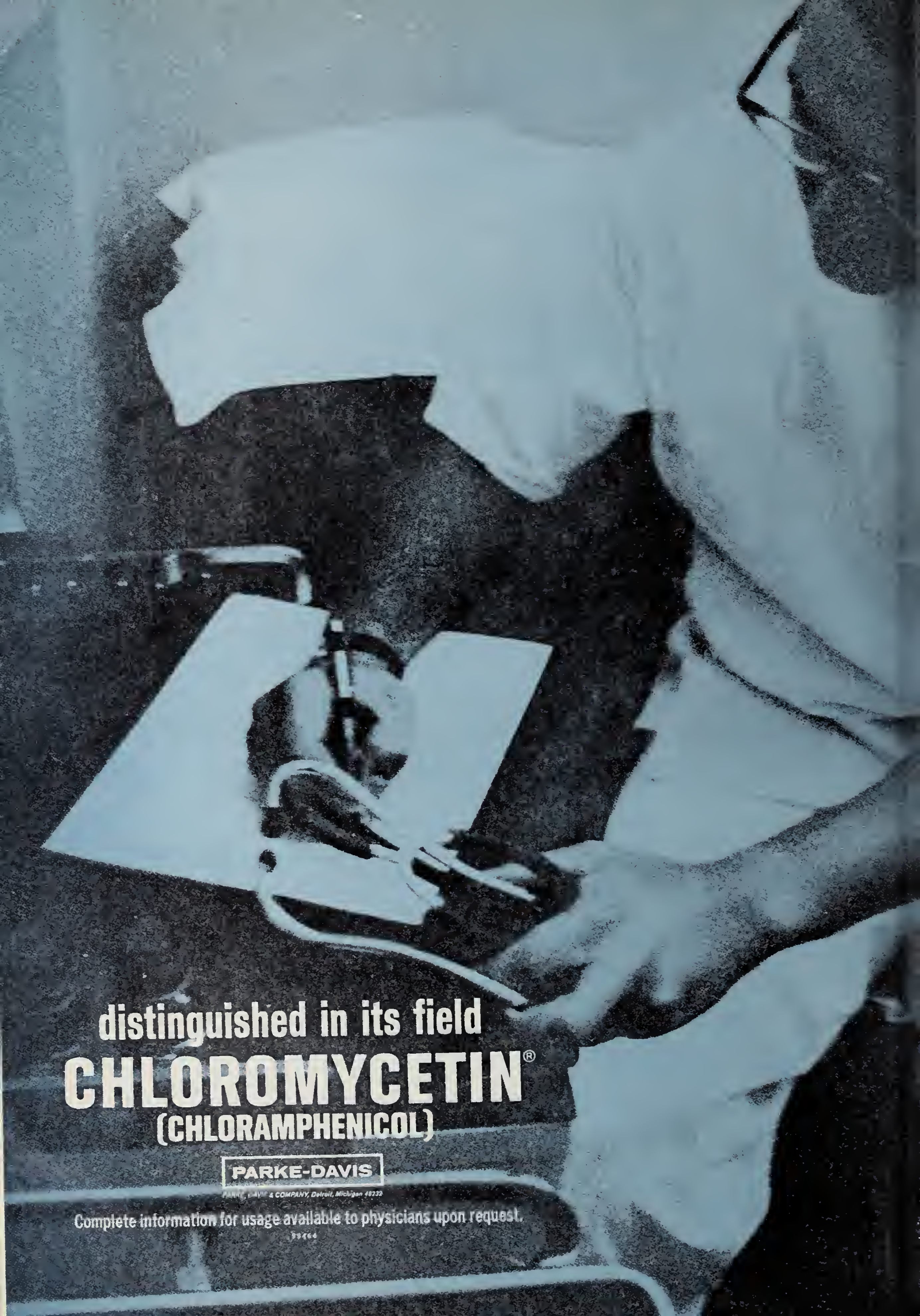
# *of the District of Columbia*

A MONTHLY PUBLICATION OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA



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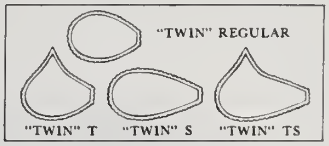

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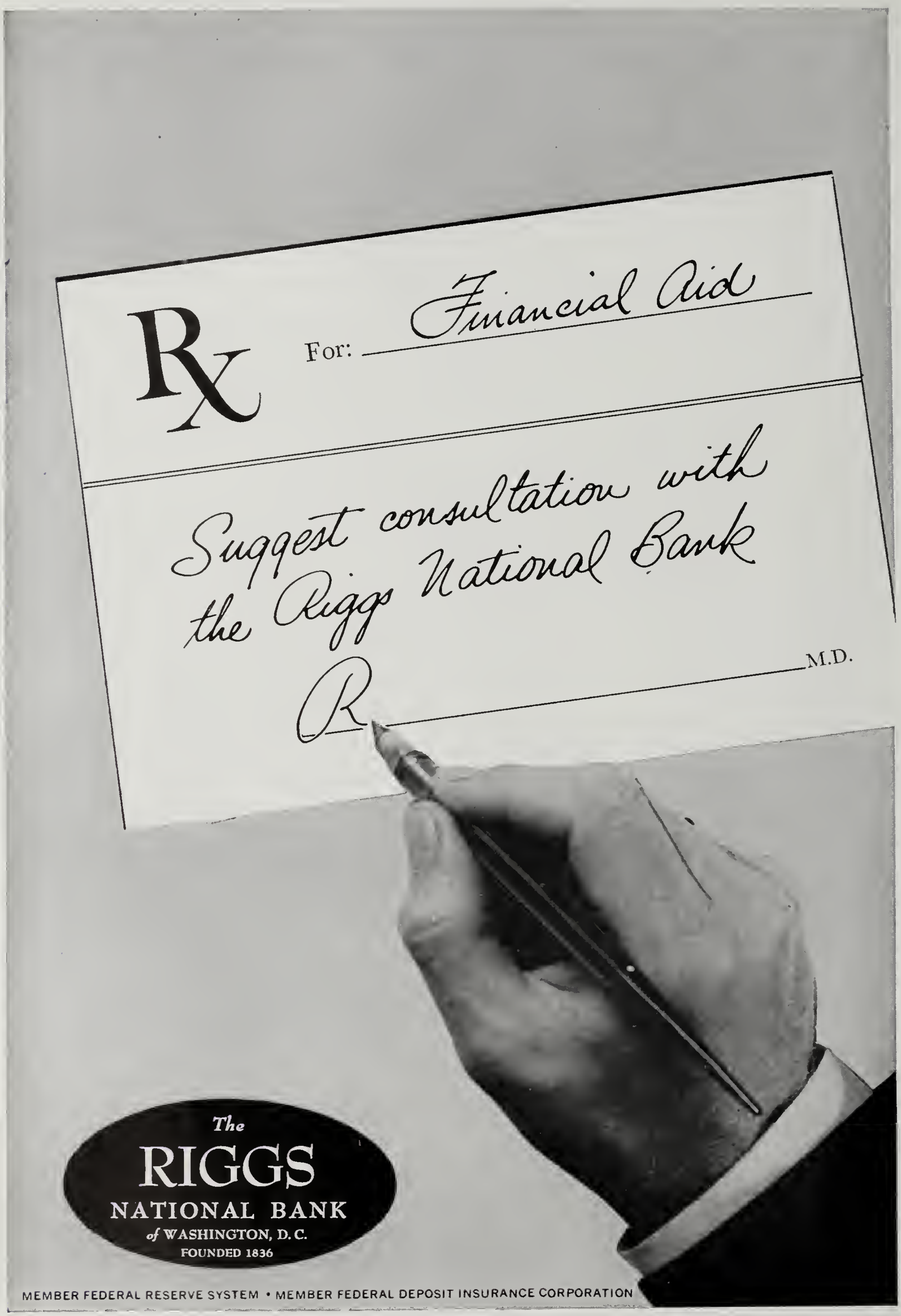
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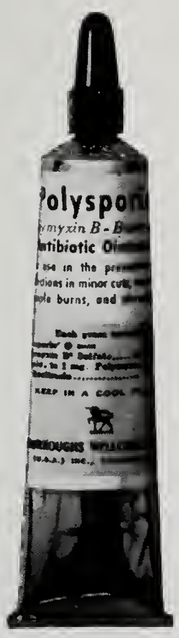

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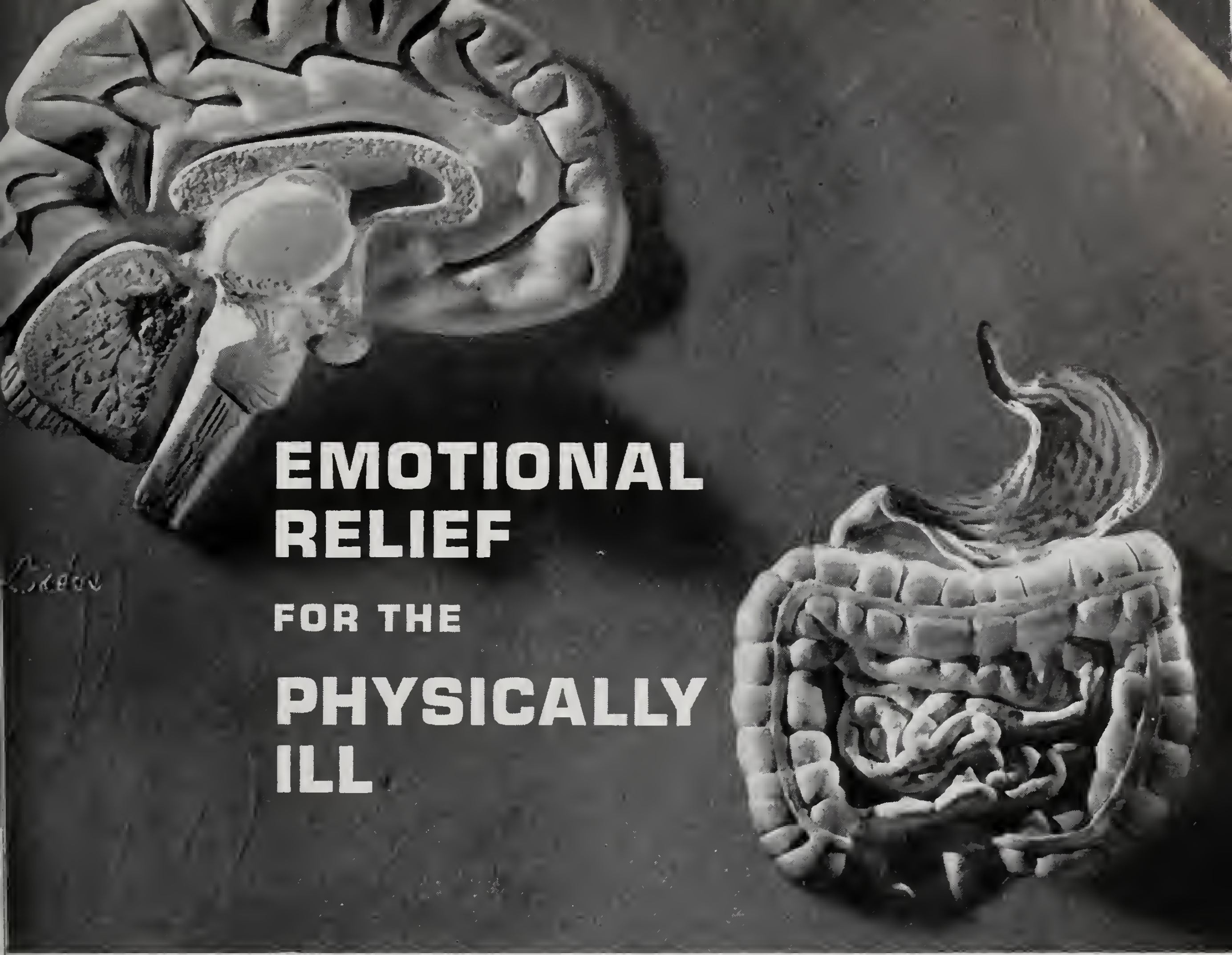

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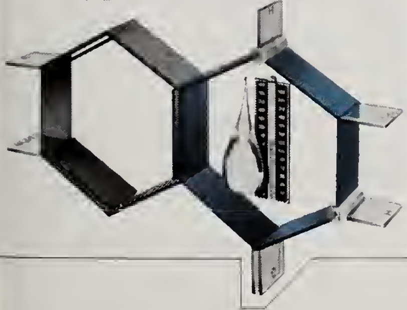

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2. Schwartz, M.: Office Evaluation of a New Diuretic in Patients with Hypertensive Diseases. Scientific Exhibit Presented at the Clinical Meeting of the American Medical Association, Los Angeles, California, Nov. 25-28, 1962.

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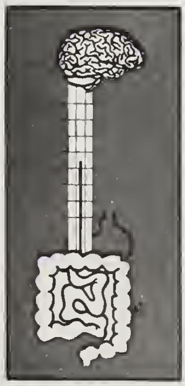

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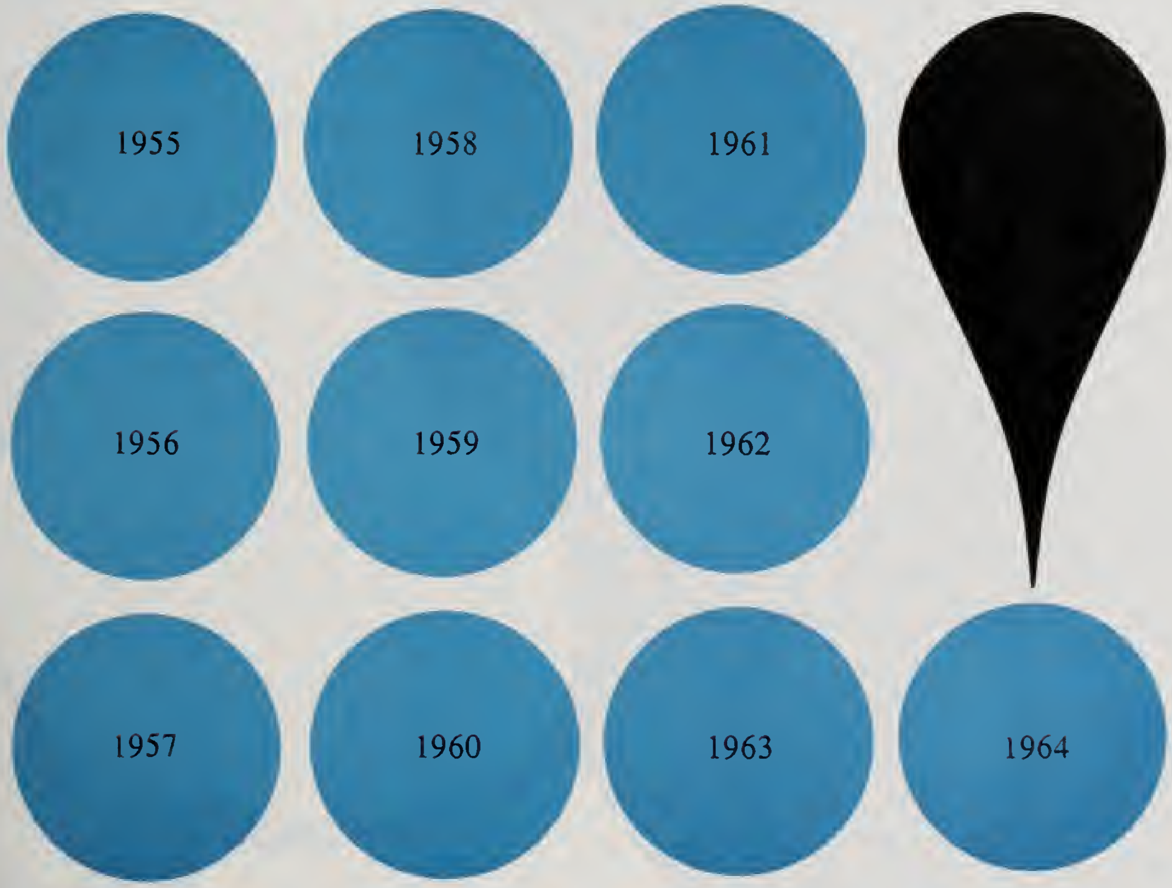

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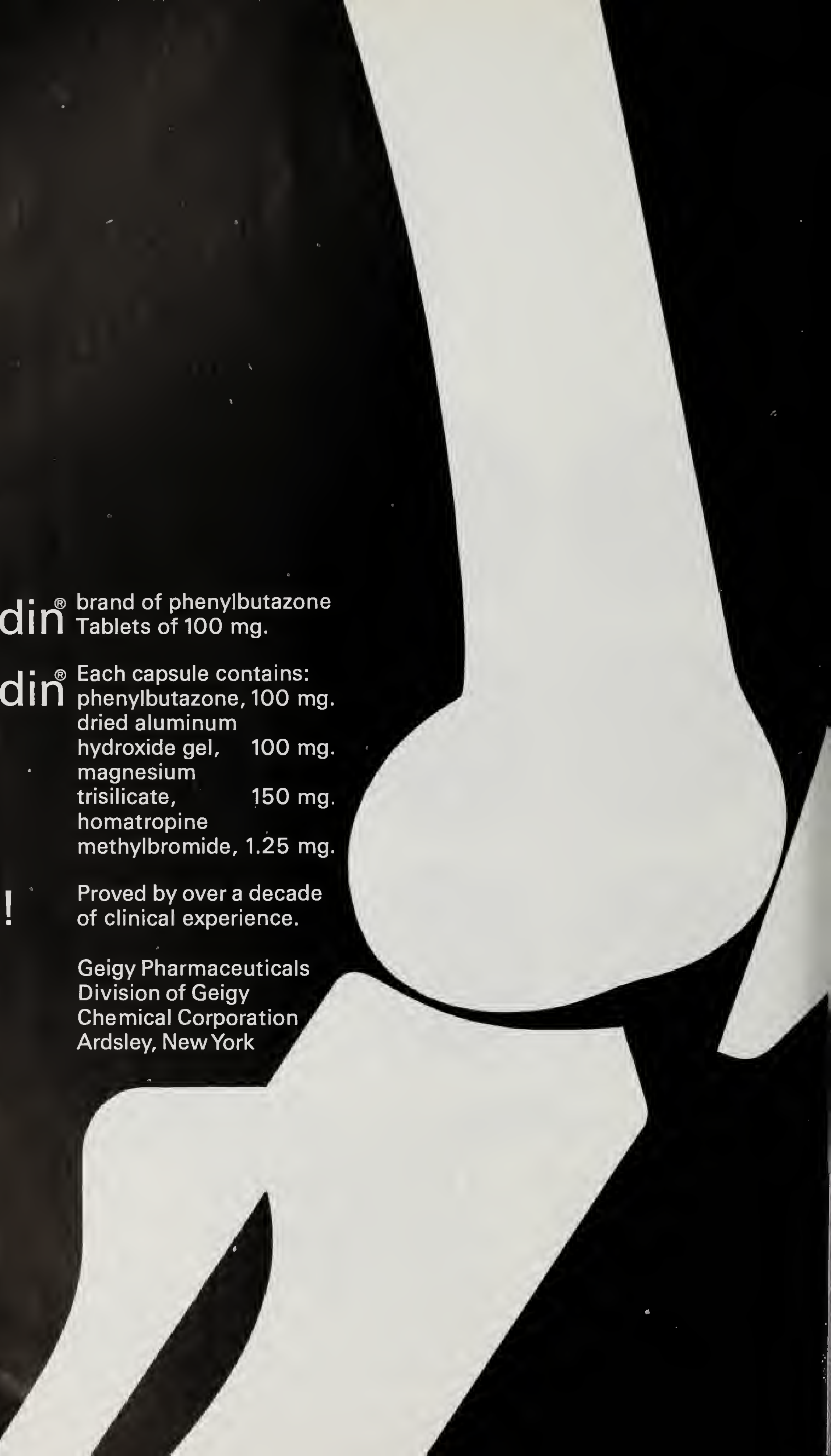

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**MEDICAL ANNALS**

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*September 1964* VOLUME XXXIII • NUMBER 9

# Cardiac Arrest Complicating Acute Myocardial Infarction*†

## Report of Five Cases Successfully Resuscitated and Review of the Literature

JOHN C. CHIOCCA, M.D.

*Second-year Resident in Medicine, Washington (D. C.) Hospital Center*

It is estimated that 10,000 cases of cardiac arrest occur yearly in the United States.[1] This fascinating medical emergency has received special attention in the medical literature only during the last 2 decades.

Much has been accomplished since Beck and his co-workers[2] reported the first successful internal defibrillation with complete recovery in a human being in 1947. This accomplishment opened the doors of cardiac resuscitation to the patient with arrhythmias as a complication of occlusive coronary artery disease. In 1953 Reagan et al[3] performed the first resuscitation of a patient with acute myocardial infarction, employing emergency thoracotomy followed by internal cardiac massage and internal electric countershock. His example was soon followed by Celio,[4] Beck,[5] and others.

A second great advance was made by Zoll and collaborators[6] in 1956, when they performed the first successful external defibrillation in a man by administering alternating current (A.C.) countershock. Nast[7] reported the first case of resuscitation of a cardiac arrest due to myocardial infarction without the use of thoracotomy treated in 1958. Shortly thereafter several communications appeared in the medical literature reporting similar cases.[8, 9] It was finally Kouwenhoven, Jude and co-workers[9, 10] who devised the technique for the so-called "closed-chest cardiac massage," they being the first ones who were able to restore the cardiac activity in 78 per cent of a series of patients having cardiac arrest. They stated: "Anyone, anywhere can initiate cardiac resuscitation without the need of complex equipment; all that is needed are 2 hands."

During the course of myocardial infarction cardiac arrhythmias may occur unpredictably, transiently and even without warning symptoms, jeopardizing the patient's life.

According to Spann and his co-workers[11] in a survey of 900 cases collected from the literature, detectable arrhythmias occur in 20 per cent of patients with acute myocardial infarction. In other series this figure rises even higher; Imperial and his co-workers[12] in their series of 153 instances of acute myocardial infarction state that disturbances of the rate, rhythm and conduction complicated the course in 73.2 per cent of the cases.

It has been estimated by Corday and Irving[13] that premature ventricular systoles occur in 33 per cent of the cases, atrial fibrillation in 7 to 12 per cent, bundle-branch-block in 8 per cent, atrioventricular block in 6 per cent, paroxysmal atrial tachycardia in 3 per cent, and atrial flutter in 0.5 to 3 per cent. It is quite difficult to assess the incidence of ventricular fibrillation and ventricular standstill because of the lack of proper statistics. Stroud and Feil,[14] in reviewing the literature about the electrocardiogram in terminal states, found that in a group of 80 patients dying of heart disease, ventricular fibrillation was the terminal event in 37.8 per cent, whereas in a group without heart disease (76 patients) ventricular fibrillation occurred in 34 per cent. Klassen[15] in his series of 126 cases of cardiac arrest in medical patients gives an incidence of 37 per cent of ventricular fibrillation and 63 per cent of asystole. Woods and Barnes[16] in a series of 128 patients who had acute myocardial infarction estimated that ventricular fibrillation and ventricular standstill were the mechanisms of death in 50 per cent of those who died.

---

* This paper received First Award at the second-year resident level, First Award for papers of the house staff, Department of Internal Medicine, and Third Award for papers of the entire staff at the Annual Medical Staff Dinner of the Washington Hospital Center, held in Washington, D.C., April 23, 1964.

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Jude and his co-workers[10] have estimated in their series of 138 instances of cardiac arrest that ventricular fibrillation was present in 30 per cent of the cases. In their group having 24 acute myocardial infarctions the frequency of ventricular fibrillation rises then to 87 per cent (21 out of 24 cases). In a recent reëvaluation of the cause of 62 cardiac arrests occurring in 61 patients with acute myocardial infarction at the Johns Hopkins Hospital, Jude[17] estimated that ventricular fibrillation was the responsible arrhythmia in 47 cases (76 per cent) whereas asystole was present in 15 cases (24 per cent). Ventricular fibrillation is the most serious of all arrhythmias; the ventricles contract in an irregular fashion, uncoördinately, the heart becomes unable to pump effectively, and death of the vital tissues appears within a matter of a few minutes. This arrhythmia is almost always fatal, although there have been several cases of spontaneous recovery reported in the literature.[18-21] Because of the immediate and complete circulatory failure which ensues every case calls for rapid diagnosis and proper treatment in order to avoid irreversible damage to the central nervous system. The immediate aim of the cardiac resuscitation is prompt restoration and maintenance of the oxygenation system by artificial ventilation and artificial circulation. Depending on the effectiveness of the resuscitative measures, the patient may recover completely, survive in varying degrees of decerebration, or die in a few minutes.

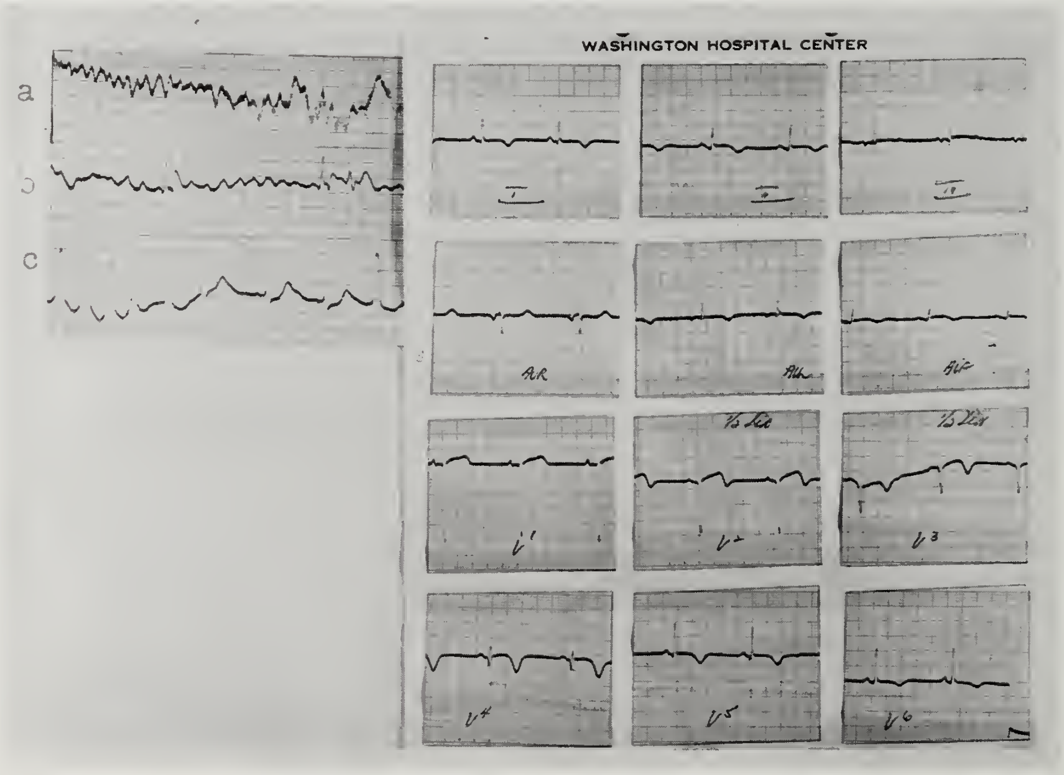

FIG. 1. Case 1. a. Initial ECG showing ventricular fibrillation. b. Atrial fibrillation following electric shock. c. ECG showing marked myocardial irritability. d. Complete ECG showing acute anterior wall myocardial infarction.

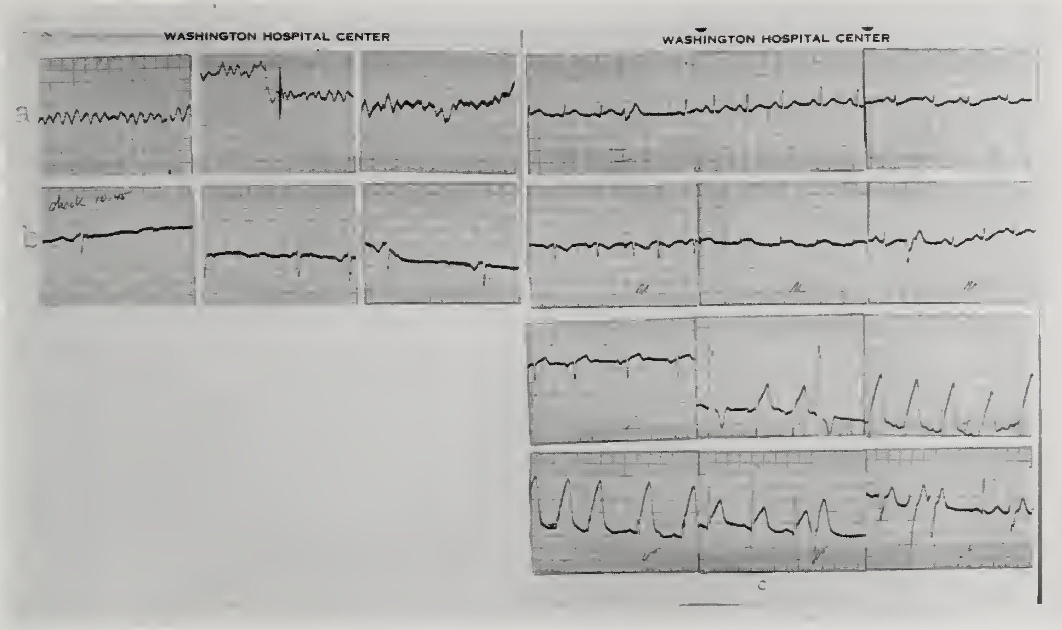

**FIG. 2. Case 2. a. Initial tracing showing ventricular fibrillation. b. Tracing taken after electric shock showing NSR with a second degree A-V block. c. Complete ECG showing evidence of acute anteroseptal myocardial infarction.**

## Report of Cases

**Case 1** (No. 22-65-06). A 48-year-old woman was in good health except for mild systemic hypertension until the day of admission to the hosptial. On March 30, 1962 at 1:30 p.m. she suddenly experienced severe substernal pain radiating to the left shoulder and left arm, followed by nausea, vomiting and profuse diaphoresis. At 4 p.m. she was examined by her private physician and given 75 mg. of meperidine intramuscularly. She was then admitted to the Medical Intensive Care Unit of the Washington Hospital Center. Shortly after her arrival to the hospital, while she was being examined by a house officer, she became apneic, cyanotic and had a convulsive seizure. The blood pressure and pulse were unobtainable. External cardiac massage was instituted within a minute, followed shortly thereafter by the use of oxygen by positive pressure mask and vasopressors via a venous cut-down. An initial electrocardiogram showed ventricular fibrillation (figure 1-a). Within 5 minutes of the onset of the cardiac arrest she was given 2 shocks of 350 volts each by A.C. The ventricular fibrillation reverted to an idioventricular rhythm followed by atrial fibrillation (figure 1-b) and by evidence of marked myocardial irritability manifested by sinus rhythm with multifocal premature ventricular contractions alternating with paroxysms of ventricular tachycardia (figure 1-c).

About 10 minutes after the onset of the cardiac arrest she became conscious, and the blood pressure was maintained at 100/70 with vasopressors. She did not show any evidence of a neurologic deficit. A 12-lead electrocardiogram (ECG) taken shortly thereafter showed abnormalities compatible with the presence of an acute anterior myocardial infarction (figure 1-d). The cardiac mechanism was continuously observed by the use of a cardiac monitor. Anticoagulant therapy was instituted, and effective blood pressure was maintained by a slow intravenous drip of vasopressors. Quinidine sulfate was given orally in view of the persistent myocardial irritability. On April 2 her cardiac mechanism became sinus in origin; the continuous monitoring and the anti-arrhythmic therapy were discontinued. By the following day her blood pressure became stable without the aid of vasopressors. She was transferred from the Intensive Care Unit on April 7. She recovered without further complication except for a transient partial atelectasis of the lower lobe of the left lung and an unexplained febrile reaction, probably drug-induced. She made a normal convalescence and was discharged from the hospital on May 5, 1962 in normal sinus rhythm and normal conduction.

**Case 2** (No. 30-57-63). A 49-year-old man had a history of rheumatic fever since the age of 17. In 1955 at the age of 41 he developed angina pectoris and was found to have a heart murmur. On October 23, 1963 at 9 a.m. he developed a squeezing type of pain across the chest followed by nausea and diaphoresis. He was admitted to the Emergency Room of the Washington Hospital Center at 10:14 a.m. of the same day, still complaining of severe chest pain. His blood pressure was 160/100 and the pulse 72 per minute and regular. At 10:35 a.m., while his lungs were examined by a house officer, he collapsed, becoming apneic and cyanotic; his vital signs were not obtainable. External cardiac massage was instituted within a minute, and respiration was assisted by oxygen administered through an endotracheal tube; vasopressor therapy was started via an intravenous cut-down. An electrocardiogram demonstrated that the cardiac arrest was due to ventricular fibrillation (figure 2-a). At 10:45 a.m. he was given an external A.C. countershock of 450 volts with immediate conversion to sinus rhythm with a second degree atrioventricular block (figure 2-b), which later reverted spontaneously to sinus tachycardia with a rate of 140 per minute. A standard 12-lead ECG taken shortly thereafter showed abnormalities of an acute anteroseptal myocardial infarction (figure 2-c); the rhythm was sinus, and it was frequently interrupted by premature ventricular contractions. At about 11:15 a.m. he was admitted to the Medical Intensive Care Unit, at which time he was conscious and slightly cyanotic. His blood pressure was 160/90; he was still on vasopressors. There was no evidence of mental or neurologic deficit. Upon the admission to the ward anticoagulant therapy was instituted, oral quinidine sulfate was given as a prophylactic anti-arrhythmic, and he was attached to a cardiac monitor in order to detect the possible development of arrhythmias.

A more careful physical examination performed later that day disclosed signs of mitral stenosis and early congestive heart failure. The patient was then given digitalis by mouth and placed in an oxygen tent. His cardiac mechanism remained sinus for the rest of the stay in the hospital. The pressor therapy was discontinued on October 27, and he was moved from the Intensive Care Unit 2 days later. He had an uneventful recovery and was discharged from the hospital on November 13, 1963, in normal sinus rhythm with first degree atrioventricular block.

**Case 3** (No. 30-68-55). A 70-year-old woman was well and very active all of her life. On October 31, 1963 at 6 p.m. she experienced a sensation of tightness across the chest radiating to the left arm and became pale and profusely diaphoretic. At 6:28 p.m. she was admitted to the Emergency Room of the Washington Hospital Center where she collapsed while undressing and fell, apparently lifeless, on the floor. A house officer was promptly summoned who, after verifying the absence of pulse, blood pressure and respiration (1 minute), instituted external cardiac massage. Immediately thereafter she was given oxygen via an endotracheal tube and vasopressors through a venous cut-down.

An ECG showed ventricular fibrillation (figure 3-a). Ten minutes after the onset of the cardiac arrest she was given an external A.C. countershock of 350 volts without result; 2 more consecutive shocks of 450 volts were followed by reversion of the arrhythmia to an idioventricular rhythm (figure 3-c). Isoproterenol (0.5 mg.) was then given intravenously and the rhythm reverted to a sinus one (figure 3-b). A

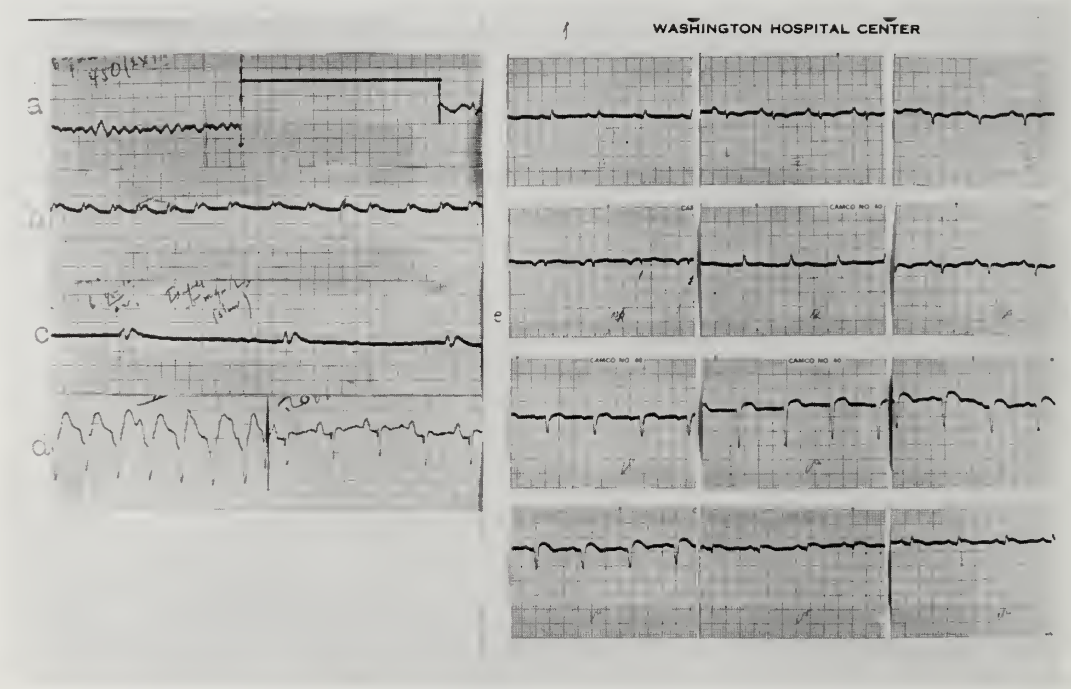

**FIG. 3.** Case 3. a. Initial tracing showing ventricular fibrillation. b. Following administration of isoproterenol the idioventricular rhythm converted to sinus tachycardia. c. Idioventricular rhythm following first electric shock. d. ECG showing VT converted to NSR after the use of lidocaine intravenously. e. Complete ECG showing evidence of anterior wall myocardial infarction.

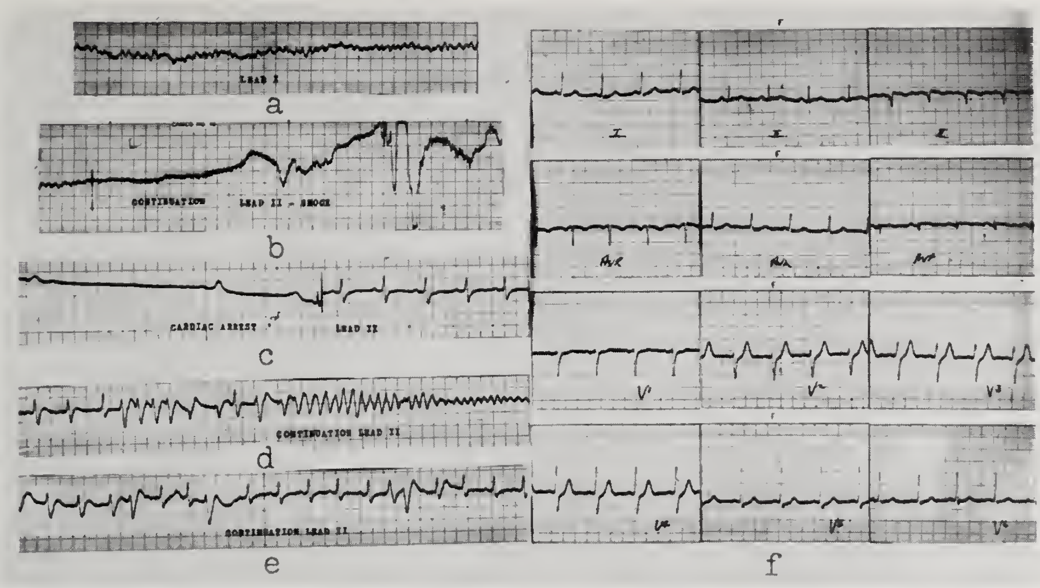

**FIG. 4. Case 4. a. Initial tracing showing ventricular fibrillation. b. Asystole following first electric shock. c. Nodal rhythm developed spontaneously following the period of asystole. d. Subsequent tracing showing the development of ventricular tachycardia followed by a second bout of ventricular fibrillation. e. ECG showing atrial fibrillation that followed the conversion of the second bout of ventricular fibrillation. f. Complete ECG showing abnormalities of an acute posterior wall myocardial infarction.**

standard 12-lead ECG taken a few moments later disclosed evidence of an anterior acute myocardial infarction (figure 3-e). At this point she regained consciousness (6:45 p.m.) but was slightly disoriented and complaining of severe chest pain. Her pulse was 130 per minute, and the blood pressure had risen to 160/100 with the aid of vasopressors.

The patient was then admitted to the Medical Intensive Care Unit and anticoagulant therapy instituted. The cardiac mechanism was constantly observed by the use of a cardiac monitor. On November 2 the pulse was 110 per minute and regular, the lungs presented crepitant rales in both bases, and there was a ventricular diastolic gallop indicating myocardial failure. Digitalis therapy was started. The following day a portable chest X-ray film showed complete atelectasis of the lower lobe of the left lung. On November 9 at 1 a.m. the alarm on the cardiac monitor turned on, and a strip of electrocardiogram recorded automatically for 10 seconds showed the presence of ventricular tachycardia at a rate of 140 per minute; the blood pressure dropped to 90/60, and acute pulmonary edema developed. The patient was given morphine sulfate, oxygen under positive pressure, vasopressors and procaine amide intravenously up to a total dose of 900 mg. At 9 a.m. the ventricular tachycardia was still present, and 50 mg. of lidocaine[22] was then given intravenously, followed by immediate conversion to sinus rhythm (figure 3-d). Quinidine sulfate was then started by mouth. From that moment on the basic cardiac rhythm remained sinus, but there was marked myocardial irritability manifested by multifocal premature ventricular contractions and persistent paroxysms of ventricular tachycardia. This arrhythmia always responded to single doses but with increasing concentrations of intravenous lidocaine.

On November 11 in view of the persistent paroxysms of ventricular tachycardia an intravenous drip of procaine amide was instituted. Twenty-four hours later her rhythm became sinus and persisted, and the procaine amide and vasopressors were then discontinued, but she was maintained on oral quinidine sulfate. The congestive heart failure was now under control, and the patient started to recover slowly; she was finally moved from the Intensive Care Unit on November 22.

She did well except for an isolated bout of left ventricular failure which was easily controlled with opiates and oxygen. The only sequela as far as the central nervous system is concerned was amnesia for the events during the day of the cardiac arrest. She was discharged from the hospital on December 23, 1963 in normal sinus rhythm and normal conduction.

**Case 4** (No. 00-65-86). A 55-year-old man, a Washington Hospital Center employee, enjoyed good health except for moderate hypertension until April 24, 1964 when, while at work in the Radiology Department, at 9:20 a.m. he became pale and collapsed on the floor. He was seen by 2 house officers passing by who, after verifying that he had a cardiac arrest, instituted external cardiac massage and mouth-to-mouth respiration. An endotracheal tube was inserted 5 minutes later and oxygen was given. Vasopressors were administered via a venous cut-down. An ECG showed ventricular fibrillation (figure 4-a). At 9:28

a.m. an external D.C. countershock of 200 W/S was given with the production of asystole (figure 4-b) followed by nodal rhythm (figure 4-c) and subsequent return of normal sinus rhythm and blood pressure. A bout of ventricular tachycardia followed this and then ventricular fibrillation recurred (figure 4-d). External cardiac massage was again instituted, and a D.C. countershock of 200 W/S was given without effect. A third 400 W/S D.C. shock was then delivered, and atrial fibrillation was produced (figure 4-e). The vasopressor infusion was discontinued because the blood pressure rose rapidly to 180/120. The infusion was replaced with a solution of lidocaine in order to control a rapid sinus tachycardia with multiple premature ventricular contractions that had developed. At this time the patient regained consciousness, the previously dilated and unresponsive pupils returned to normal, and there was no evidence of central nervous system damage.

At 10:10 a.m. he was admitted to the Medical Intensive Care Unit where a standard 12-lead ECG showed abnormalities of an acute posterior myocardial infarction (figure 4-f). The blood pressure was stabilized at 130/96; the pulse was 112 and regular. The patient was attached to a cardiac monitor, and anticoagulant and quinidine sulfate therapy were instituted. The infusion of lidocaine was discontinued on the following day in view of the absence of signs of myocardial irritability. Six days later the patient was transferred from the Intensive Care Unit.

On March 31 he experienced the sudden onset of pleuritic pain in the right hemithorax, and a pleural friction rub was heard in the same area, but X-ray examination failed to show any evidence of pulmonary infarction. This complaint subsided within 2 days and he had a normal recovery, being discharged on May 5, 1964 in sinus rhythm and normal conduction.

**Case 5** (No. 32-40-32). A 67-year-old man was in good health until a week prior to admission, when he experienced the first attack of angina pectoris. His medical history was irrelevant except for the fact that he had had mild systemic hypertension for several years. On March 30, 1964 while he was waiting for a bus he suddenly experienced a severe precordial pain which extended to the left arm. He was then admitted to the Washington Hospital Center, where he was found to have a blood pressure of 150/110, a pulse of 120 and regular, mild distention of the cervical veins, pulmonary congestion, and a ventricular diastolic gallop. An ECG (figure 5-a) showed sinus tachycardia, right bundle-branch-block, first degree atrioventricular block, and an anteroseptal myocardial infarction.

Early in the morning of the following day the patient vomited several times and became dyspneic, and then cyanotic and apneic for a short period. He was transferred to the Medical Intensive Care Unit and placed on a cardiac monitor. Digitalization was instituted, and oxygen was given by mask. Later that night he had several Stokes-Adams attacks, for which

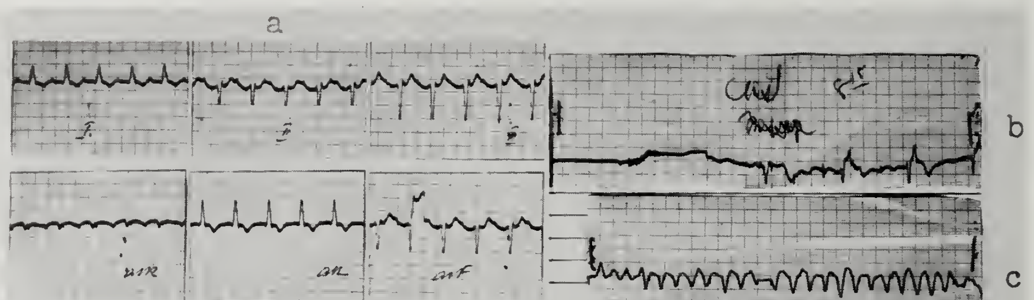

**FIG. 5. Case 5. a. ECG taken on admission showing sinus tachycardia, RBBB, first degree A-V block, and evidence of acute anteroseptal myocardial infarction. b. First episode of asystole recorded on the cardiac monitor. c. Tracing showing the first episode of ventricular fibrillation. d. Complete A-V block following conversion of ventricular fibrillation with electric shock. e. Tracing taken after the electric pacing was discontinued, showing NSR with a first degree A-V block.**

isoproterenol was administered by intravenous drip. At 8:15 p.m. he suddenly became apneic and cyanotic without detectable heart beat or blood pressure. An ECG automatically recorded by the cardiac monitor showed that the cardiac arrest was due to ventricular asystole (figure 5-b) that converted to a rhythm with a regular ventricular response at 60 per minute after the use of external cardiac massage and oxygen given under positive pressure. From there on the patient had several episodes of Stokes-Adams syncope that required the administration of large doses of isoproterenol. A few hours later (April 1 at 5:30 a.m.) an endocardial electrode was inserted in the right ventricle, and the patient was "paced" at a rate of 70 per minute under constant ECG monitoring.

The condition became worse with the development of hypotension and persistent pulmonary congestion, the urinary output decreased, and the blood urea nitrogen and serum creatinine increased, probably due to decreased renal blood flow secondary to the arterial hypotension.

On April 4 the patient's condition was somewhat improved. At 12:40 p.m. a nurse in attendance noted that he was apneic, cyanotic and pulseless. External cardiac massage and oxygen were given immediately. An ECG showed ventricular fibrillation (figure 5-c). Two minutes later an external A.C. countershock of 450 volts was delivered, and since the arrhythmia persisted a second shock of 450 volts was given with reversion to complete atrioventricular block (figure 5-d). The patient recovered consciousness. Following this he developed several episodes of apnea, and a tracheostomy was performed and the respiration was assisted with a mechanical respirator. Sodium bicarbonate and vasopressors were also given intravenously. Subsequent to this he began breathing spontaneously and regained consciousness.

Again, at 11:40 p.m. of the same day he had another episode of cardiac arrest due to ventricular fibrillation, and 2 electric countershocks (450 and 550 volts) reverted the arrhythmia to a complete atrioventricular block. From that time until about 6 a.m. he had 8 more consecutive episodes of ventricular fibrillation, all of which reverted with external cardiac massage and electric defibrillation. At this point oral quinidine sulfate was instituted.

At 6 a.m. the patient had a paroxysm of ventricular tachycardia that changed to ventricular fibrillation despite the intravenous administration of 60 mg. of lidocaine. A single dose of 120 mg. of lidocaine was then given intravenously followed by immediate reversion to complete atrioventricular block. A continuous intravenous drip of lidocaine was started immediately thereafter in an attempt to control the persistent myocardial irritability. Three more episodes of ventricular fibrillation ensued until 10 a.m., and the electric "pacing" was then discontinued since it was thought to be a possible factor precipitating the paroxysms of ventricular fibrillation. Subsequent to this the cardiac rhythm remained sinus with a first degree atrioventricular block (figure 5-e). The lack of development of further arrhythmias substantiated the idea that the electric "pacing" was a factor in precipitating the numerous bouts of ventricular fibrillation.

During the period of 24 hours in which this patient had 14 brief episodes of ventricular fibrillation his state of consciousness was relatively clear. His pupils remained small, and there was no evidence of central nervous system damage.

During the following days mentation was slow but clear and the pulmonary congestion decreased slowly, and the pressor therapy was discontinued on April 10. Two days later the administration of quinidine sulfate and cardiac monitoring were also discontinued.

On April 13 a ventricular diastolic gallop was again detected. On April 21 the tracheostomy tube was removed, and a persistent ventricular diastolic gallop and bibasilar crepitant rales were again noted. The following day the pulse became slower and irregular, an ECG showed second degree atrioventricular block with Wenckebach phenomenon. Since it was believed that this was a manifestation of digitalis toxicity, such therapy was temporarily discontinued; 2 days later another ECG showed a return to first degree atrioventricular block.

On April 30 a pericardial friction rub was detected, but a chest X-ray film failed to demonstrate any significant evidence of pericardial effusion. The following day the patient was transferred from the Intensive Care Unit with a blood pressure of 90/60 and the pulse 70 per minute and both pericardial friction rub and ventricular diastolic gallop still present.

On May 6 the patient's condition was stable in sinus rhythm with a first degree atrioventricular block, and he was transferred to another institution for further care. At this time it is known that he is well.

## Discussion

An examination of the cases published up to May, 1964 shows that since the first resuscitation in 1953 of a patient having a myocardial infarction there have been 62 documented instances in which human beings have returned to their normal lives by the use of either internal or external cardiac massage.[3-5, 7-9, 15, 17, 23-52] It is estimated that a little over 2,500,000 persons have died in the United States during the last 10 years due to disease of the coronary arteries.[53] Spiekerman and collaborators[54] have recently evaluated the incidence and mode of death resulting from coronary artery disease in an urban center with a high rate of postmortem examinations. They stated that coronary artery disease was found to be the cause of death in 23 per cent of the autopsies performed over a 5-year period at the above-mentioned center. From this group 43 per cent had sudden death, presumably due to cardiac arrest. When comparing these figures with the number of cases resuscitated during the last 10 years one might well become discouraged; however, it is still encouraging and it justifies every effort and consideration.

In this group of 62 patients the ages ranged from 34 to 83 years, with a median of 58. Cardiac arrest was more common in the groups from 40 to 49, and 50 to 59 years of age, and most of them were men (table 1).

**TABLE 1: Resuscitated Cases by Age and Sex**

| | |
|---|---|
| Total number of cases | 62 |
| Age span | 34–83 |
| Group 40–49 yrs | 18 |
| Group 50–59 " | 18 |
| Group 60–69 " | 17 |
| Group 30–39 " | 4 |
| Group 70–79 " | 3 |
| Group 80–89 " | 1 |
| Not stated | 1 |
| Males | 46 |
| Females | 8 |
| Not stated | 8 |

It was observed that cardiac arrest developed more commonly in infarctions of the posterior wall (table 2). The frequency of ventricular fibrillation or asystole responsible for cardiac arrest is still a matter of debate, due to the obvious lack of large series and to the fact that in many instances, due to the emergency of the situation or the place where cardiac arrest occurs, it is impossible to document the facts by an ECG.

**TABLE 2: Position of Myocardial Infarction**

| | |
|---|---|
| Posterior | 19 |
| Anterior | 15 |
| Anteroseptal | 14 |
| Anterolateral | 2 |
| Lateral | 1 |
| Not stated | 11 |

In our group the incidence of ventricular fibrillation is higher than what has been reported in other series[51]; here ventricular fibrillation was the initial mechanism of arrest in 74 per cent of the cases, whereas asystole was present in 26 per cent. These figures are similar to the ones given by Jude[17] in an analysis of attempts at cardiac resuscitation at Johns Hopkins from 1959 to 1964. He observed that in 63 instances of cardiac arrest due to myocardial infarction ventricular fibrillation was present in 76 per cent of the cases and asystole in 24 per cent.

In order to compare the 2 different techniques of resuscitation I have divided these patients into 2 groups, the group receiving external resuscitation (table 3) and the group receiving internal resuscitation (table 4).

**TABLE 3: External Resuscitation**

| | |
|---|---|
| External massage | 43 cases |
| Onset of massage | from 30 sec. to 5 min., most 3 min. |
| External defibrillation | 33 cases |
| Not defibrillated | 10 cases |
| Onset of defibrillation | from 1½ min. to 45 min., most less than 10 min. |
| Number of shocks | 1 to 15, most required 3 or less |
| Voltage | 250 to 880 V, most ranged 450 V |
| Complications | 3 |
| Central nervous system damage | 9 |

**TABLE 4: Internal Resuscitation**

| | |
|---|---|
| Thoracotomy | 19 cases |
| Onset of thoracotomy | from 1 to 6 min., most 3 min. |
| Internal defibrillation | 16 cases |
| External defibrillation | 1 case |
| Not defibrillated | 2 cases |
| Onset of defibrillation | from 10 min. to 35 min., most within 15 min. |
| Number of shocks | 1 to 6, most 1 shock |
| Voltage | 110 to 200 V, most 150 V |
| Complications | 11 |
| Central nervous system damage | 8 |

Forty-three patients were resuscitated by external cardiac massage, whereas 19 received internal cardiac massage. In all but 1 patient the resuscitative measures were started within the limit of time mentioned by Cole and Corday.[1] In this case cardiac massage was started 6 minutes after the onset of cardiac arrest; this patient had a marked neurologic deficit by the end of the first month of hospitalization. Thirty-four patients were externally defibrillated; they required an average of 3 or less countershocks, usually of 450 volts, the figure which is in accord with that previously stated by Zoll,[55] Kouwenhoven,[56] and Jude.[57] The 16 patients who were internally defibrillated generally necessitated 1 single shock averaging 150 volts, which is what has been recommended by Zoll.[6]

Complications have arisen from the use of both techniques of resuscitation. Those who were externally resuscitated (43 cases) developed clinically demonstrable complications in only 3 instances, of which the most serious was the development of bilateral pneumothorax and mediastinal emphysema secondary to the fracture of several ribs. The other 2 patients had uncomplicated fractures of 2 and 3 ribs respectively. Among the group that had thoracotomy and internal cardiac massage (19 patients), 11 developed complications. The most common was the presence of small left-sided pleural effusion and infection of the operative site.

One patient had paralysis of the left hemidiaphragm, presumably due to laceration of the phrenic nerve during opening the pericardium; another had laceration of the pericardium. Considering the 2 groups together, there was a total of 17 patients (30 per cent) who had evidence of central nervous system damage, occurring in both groups in equal proportion. The great majority had either transient coma or amnesia for the events occurring during the episode of cardiac arrest. As it has been mentioned above, serious involvement of the central nervous system ensued in only 1 patient, in whom the resuscitative measures were started 6 minutes after the onset of the cardiac arrest. Apparently the rate of survival in cardiac arrest due to myocardial infarction is low,[17, 46] since in the majority of cases it is most likely to occur unpremeditatedly anywhere without the presence of trained individuals who are able to take care of such an emergency. It must be kept in mind that the resuscitation of patients with acute myocardial infarction as a common mode of practice is just in its incipient stage. The introduction of external cardiac massage has provided the physician with a simple but effective technique for cardiac resuscitation. Comparing the results obtained with internal and external cardiac massage we can say that the latter provides a better survival rate.[10, 15, 17, 58, 59]

Apparently there is a high incidence of rib fracture with marrow and fat embolism arising from the use of external cardiac massage,[60, 61] but the disadvantage imposed by these complications is greatly outweighed by the facility of this technique of resuscitation. These complications can be decreased by education in the technique of chest massage. We can conclude that external cardiac massage combined with adequate pulmonary ventilation[62] will properly maintain the function of the vital organs until normal circulation can be restored. According to Benson and Jude[63] there are some factors that weigh in favor of the closed technique: (1) It can be begun immediately without waiting for equipment or the overcoming of any reluctance to open the chest; (2) it can be applied by those not surgically trained; and (3) it can be applied without regard to place, whereas the open technique is best carried out in a hospital, the only place which is equipped to handle rib retraction, hemostasis and pneumothorax, phenomena which are inherent to any procedure that presumes the opening of the chest.

### A New Concept: "Coronary Care Unit"

The frequency of arrhythmias during the course of acute myocardial infarction is considerable; they may appear suddenly and unpredictably without warning symptoms. The prompt attention that this type of emergency requires has been emphasized by the cases reported above and in the literature.

The ideal way for early detection and subsequent treatment of cardiac arrhythmias that might complicate the course of a patient having an acute myocardial infarction is the routine use of constant electronic surveillance by the means of cardiac monitors.

Recently Wilburne[64] has advocated a program designed to prevent death from cardiac arrest in patients with acute myocardial infarction. He proposed the institution of a central coronary care unit where all patients having an acute myocardial infarction should be assigned. Here they can be closely controlled by the use of a central multichannel physiologic monitoring system in which a continuous simultaneous oscilloscopic electrocardiogram and digital readout of arterial blood pressure are displayed. Each patient's room has an individual wall-mounted duplicate display panel with an outlet defibrillator connection. Closed-circuit television monitoring of the more critically ill patients supplements the physiologic monitor. Included in the system is an electronic device which initiates both an audible and visual alarm when actuated by ventricular fibrillation, asystole, and predetermined changes in ventricular rate or by preselected blood-pressure declines.

Day[65] has also emphasized the importance of this concept, stating that "the intensive care of the acute coronary patient under constant electronic surveillance could be best performed in a separate area devoted entirely to the treatment of acute myocardial infarction." This fact has already been accomplished in several hospitals in this country.[11, 65, 66] The "Hartford Coronary Care Center" at the Bethany Hospital, Kansas City, Kansas[67] consists of 4 private rooms which are included within the regular I.C.U. A combination of cardiac monitor and pacemaker is built in at the bedside in order to keep constant control over the coronary patient during the first 10 to 12 days after his attack. Each room is outfitted with oxygen and suction outlets.

blood-pressure apparatus, and a call system that can summon help from anywhere in the hospital. Kept handy are a D.C. defibrillator and a cart with several emergency medications and the instruments which are necessary for tracheal intubation. In a period of 19 months 107 patients having acute myocardial infarction have been monitored for a total of 26,800 hours at that center.[51] Twelve patients had unexpected cardiac arrest from which 7 were resuscitated and are alive and well.

It has been found in a survey performed at the Manchester Memorial Hospital in Connecticut[66] that 15 per cent fewer deaths have occurred in those patients with acute myocardial infarction admitted to the Intensive Care Unit compared to those admitted in the regular wards.

Continuous physiologic monitoring introduces a new dynamic concept in medicine. It links many instruments into a system for continuous automatic measuring, recording and observing the patient's total physical state. It can be applied simultaneously to many patients whose data are transmitted either with a wireless telemetric system to a central computer or with a wired system connecting the sensors through bedside converters to a central console where physicians can be warned of any development warranting immediate attention.[68]

The use of the now standard recovery room after surgical procedures represents a significant advance in reducing surgical mortality. There is every reason to anticipate equal benefits from a coronary care unit in the treatment of the acute myocardial infarction. Medicine will be able, in this way, to give "the second chance" to those with what Beck called "hearts too good to die."

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(*Continued on page 432*)

# Complete Heart Block in Acute Myocardial Infarction*

**THOMAS HERNANDEZ, M.D.**

*Senior Resident in Medicine, Washington (D. C.) Hospital Center*

COMPLETE HEART BLOCK was probably first described clinically by Morgagni in 1761. He described an attack of "epilepsy" occurring in a 68-year-old priest, during which the pulse became slow. He thought the cause to be in the heart rather than in the brain.[1]

Thomas Spens described a patient in 1793 with an irregular pulse of 10 per minute who fell unconscious and recovered in a few minutes. After many such attacks the patient died on the third day.[1]

Robert Adams in 1827 reported perhaps the first case of complete heart block described in the nineteenth century.[1] He thought that the seat of the disease was in the heart but ventured no explanation of the slow pulse. He appears not to have examined the heart of the patient reported.

William Stokes in 1846 reported for the first time the appearance of the jugular pulsations more than double the number of manifest ventricular contractions.[1]

His in 1899 reported the first case of complete heart block, documented with tracings of the arterial and venous pulsations.[1] He stated: "The atrium and ventricle beat at unlike tempo."

In this paper I shall present the experience with complete heart block complicating acute myocardial infarction from 1959 through 1962 at the Washington Hospital Center.

## Materials and Methods

Twenty-nine charts have been reviewed from the files of the Washington Hospital Center. All patients had complete heart block as a complication of an acute myocardial infarction. All cases selected had unequivocal historical, electrocardiographic, and laboratory (enzymes studies, leukocyte counts and sedimentation rates) evidence of an acute myocardial infarction.

Localization of the myocardial infarction was determined electrocardiographically in the survivors and both electrocardiographically and anatomically in those who died and came to autopsy.

The ages of the patients varied from 42 to 92 years.

## Onset of the Block

Seventeen of the patients had the onset of complete heart block during the first day of hospitalization, 6 during the second day, 1 during the third day, 1 during the fifth, 1 on the twelfth, and 1 on the fourteenth day.

Three of the patients maintained complete heart block during 4 weeks of hospitalization and were discharged with it. Treatment was not necessary because they tolerated a heart rate of 50 per minute without symptoms.

One of the patients had a posteroseptal infarction 3 months before her second admission with asymptomatic complete heart block. On the day of her second admission she developed severe chest pain. SGOT, white blood cell count, and sedimentation rate were suggestive of an acute myocardial infarction. After 2 weeks of hospitalization she continued to require isoproterenol because of constant Stokes-Adams seizures. It was then decided to insert a temporary intravenous pacemaker in the right ventricle. Four days later the pacemaker was stopped and the patient resumed sinus rhythm, which a few hours later reverted to complete heart block. It was then decided to insert a permanent pacemaker. She tolerated this procedure, had no more symptoms of Stokes-Adams syndrome, and was discharged 3 weeks later. At the present time, 10 months after the operation, she leads a fairly active life.

Another patient noted the onset of symptoms

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6 weeks before admission. She received very large amounts of isoproterenol, as much as 20 mg. diluted in 1,000 c.c. of glucose solution intravenously plus 0.1 mg. subcutaneously every hour. Despite these measures Stokes-Adams seizures continued. An intravenous temporary pacemaker was inserted with good results. Normal sinus rhythm was restored in 36 hours. When the intracardiac pacemaker was discontinued a few days later normal sinus rhythm persisted until discharge 4 weeks later. Her electrocardiogram did not reveal myocardial infarction, but the presence of right bundle-branch-block (RBBB), elevation of transaminase, white blood cell count, and sedimentation rate were indicative of an acute injury. Seven months after her discharge complete heart block recurred. She was admitted to another hospital where she again improved with isoproterenol but later went into ventricular fibrillation and died. Autopsy revealed myocardial fibrosis which involved the atrioventricular node and bundle of His.

Another patient, in whom a myocardial infarction could not be localized, had recurrent episodes of Stokes-Adams seizures in spite of the use of large amounts of isoproterenol. This patient reverted to sinus rhythm after 15 days of treatment. Her electrocardiogram revealed only RBBB, but SGOT, white blood cell count, and sedimentation rate were indicative of an infarction.

### Duration of the Arrhythmia

The duration of the arrhythmia varied from 30 minutes to 15 days. Three of the patients had persistent complete heart block after 4 weeks of hospitalization. Two of them are doing well 1 year later. The other was followed for 6 months in the clinic but was then lost to follow-up.

### Location of the Infarction

Electrocardiographically, 18 patients, or 65 per cent of the cases, had infarction of the posterior wall. Six had an anterior wall infarction. In 4 cases the location could not be determined. In 1 of them there was autopsy evidence of scarring of the AV node and fibrosis of the myocardium.

### Mortality

There were 15 deaths during hospitalization, and 1 patient died in another hospital 7 months later. All of them died while in complete heart block with the exception of 1 who died when the rhythm was of sinus origin.

Thirteen of the patients were discharged in good general condition to be followed by their private physicians.

Eleven patients are still alive, enjoying a fairly active life. One of them was followed in the clinic for 6 months and could not be contacted afterwards. One patient with persistent complete heart block following acute myocardial infarction enjoys a fairly active life 1 year later.

The site of the myocardial infarction was demonstrated in 10 necropsies.

### Discussion

The etiology of complete heart block was reviewed by Rowe and White[2] in 1958. In 35 per cent of 278 patients coronary heart disease without hypertension or myocardial infarction was the cause, coronary heart disease with acute myocardial infarction in 14 per cent, coronary heart disease with hypertension in 24 per cent, rheumatic heart disease in 8 per cent, digitalis intoxication in 6 per cent, congenital heart disease in 6 per cent, miscellaneous in 4 per cent, and of unknown cause in 4 per cent.

The cardiovascular hemodynamic state in complete heart block without congestive heart failure is characterized by increased pressure in the right heart, pulmonary artery and systemic arteries, increased systemic and pulmonic resistance, reduced cardiac output, and increased stroke volume.[3]

Complete heart block is observed in 1 to 3 per cent of patients with acute myocardial infarction. Ten to 19 per cent of all cases of complete heart block result from acute myocardial infarction.[2]

In another series 2 per cent of acute myocardial infarctions were complicated by complete heart block with an early mortality of 45 per cent.[2, 4, 5]

Gilchrist[6] surveyed the natural history of this complication and suggested that it may be expected to resolve spontaneously by the end of the first week. Nevertheless, in his 25 cases 11 patients died in the hospital, 5 of them in the first few hours after the onset of the infarction. Similarly, of the 49 patients reported by Penton[7] 25 died within a few days after the onset of the infarction.

Permanent complete heart block is rarely seen as a sequela of myocardial infarction.

Complete heart block was 5 times more common in the course of the posterior myocardial infarction in the series of Blondeau et al.[8]

Nine of 10 patients have the onset of complete heart block within 1 week of their infarction. Two-thirds have an onset during the first 3 days. The onset is most common in the second and third days.[8]

James[9] believes that loss of consciousness during acute posterior myocardial infarction is due to complete heart block, reduced cardiac output, and cerebral ischemia. Variable periods of unconsciousness during acute infarction are more common than generally realized.

In the presence of a posterior infarction and an arrhythmia, the patient should be continuously monitored by a regular ECG machine or a special cardiac monitoring apparatus. The mortality ranges from 43 to 100 per cent in various series,[7, 8, 10] which justifies careful monitoring and prompt treatment of such patients.

Isoproterenol has been used with very good results. The pharmacologic effects of this drug include a positive inotropic effect on the myocardium; increased atrial and ventricular pacemaker rate; improved atrioventricular conduction; increased cardiac index, coronary flow and stroke volume; and decreased peripheral resistance and arteriovenous oxygen difference.[10, 11] Its minimal action on the the myocardial automaticity suggests that this drug may be used in acute myocardial infarction when an increase in myocardial automaticity is undesirable.

Robbin et al[12] believe that isoproterenol is the safest drug for use in Stokes-Adams syndrome when alternating ventricular tachycardia and ventricular asystole occur in the same patient.

Some authors such as Chandler and Clapper[11] have reported ventricular tachycardia following a large parenteral dose of isoproterenol.

Since complete heart block complicating myocardial infarction is usually transient, the judicious use of isoproterenol may result in a reduced mortality rate. A trial of 0.2 mg. intravenously with constant ECG monitoring may indicate whether continuous isoproterenol will be effective.[10] The infusion may be started with 2 mg. in 500 c.c. of glucose solution titrated to the desired heart rate, usually above 30 per minute. This usually requires 15 to 40 drops per minute or 5 to 12 mcg. When the cardiac mechanism has stabilized, the concentration of the solution and rate of administration may be reduced gradually. Intermittent intramuscular doses of 0.1 to 0.2 mg. or sublingual doses of 5 to 15 mg. are continued as a maintenance dose. The action of the latter dose is dissipated in 30 to 60 minutes. Isoproterenol (Proternol®), a sustained action preparation, may be used in selected cases. This preparation is absorbed over a 4- to 6-hour period.[12]

Steroids have also been an interesting subject in the treatment of complete heart block following acute myocardial infarction.

Lown et al[13] have demonstrated that patients with Addison's disease exhibited a consistent, statistically significant increase in the PR interval, and 20 per cent of these patients show first degree heart block at some stage of the disease. Nine of 16 patients in his series who received cortisone had a significant decrease in the PR interval. It is postulated that steroids exert a direct accelerating action on the AV conducting system. Conversely, patients with Cushing's disease tended to show a shortened PR interval; some of them resembled those seen in Wolf-Parkinson-White syndrome.

Dall[14] in treating 7 patients with acute myocardial infarction and complete heart block with steroids found that the length of treatment before sinus rhythm resumed varied from 36 hours to 8 days. In his series 2 patients died after sinus rhythm had been restored. One of his patients failed to respond to steroids and died with persistent block after 12 hours of oral steroid treatment. Autopsy revealed a massive infarction of the anterior wall, posterior wall, and the entire septum. It should be emphasized that spontaneous resolution of complete heart block may occur in a similar period of time. Dall and Hall[15] believe that it has not been established beyond doubt that intravenous steroid therapy is effective in restoring sinus rhythm.

Patients with complete heart block complicating myocardial infarction who do not respond to medical treatment may be candidates for the use of an artifical pacemaker.[16] It has been said that failure of medical treatment is meant simply "that the patient continues to suffer unpredictable, hazardous, syncopal attacks accompanied by cardiac standstill. There is no medical regimen which offers long-range security to the patient suffering with Stokes-Adams disease. There is no medication which renders the capricious, unreliable intrinsic ventricular pacemaker a dependable source of heart beat."[17]

An artificial pacemaker for short-term pacing may be used. These devices provide means of therapy which, at least in part, substitute for the electrical conduction system of the heart. Generally speaking, an ideal prosthetic device should return heart function to a physiologic level of activity which is as close to normal as possible. The pacer stimulates normal heart action by synchronizing, in proper time and sequence, atrial and ventricular contractions.

Samet and Bernstein[17] used an external pacing unit in 4 patients with acute myocardial infarction with Stokes-Adams seizures. Good results without complications were maintained up to 9 weeks after admission when a permanent Chardack pacemaker was implanted.

De Sanctis[18] reported 16 cases of short-term pacing using the right jugular vein to enter the right ventricular cavity. With the use of the external jugular vein the procedure proved safe in his hands. In some cases the brachial vein is preferable, but this depends upon the ability of the operator to use either vein. The heart rate is set at 70 to 90 per minute and is increased or decreased if necessary.

Stimulating currents are in the order of 1 to 4 milliamperes.[16] If the required driving current reaches 10 to 15 milliamperes the patient may develop twitching of the skeletal muscles with each impulse.

De Sanctis[18] reported 12 cases in which the electrode was placed as an urgent measure when the Stokes-Adams seizures could not be controlled by pharmacologic measures. Postmortem examinations have failed to reveal damage to the endomyocardium due to electrical stimulation. Since thrombi may form around the catheter tip, anticoagulants are empirically advised when the electrode will remain in place for more than a few days.

In patients with an acute infarction placement of an internal pacemaker is not strongly recommended because of the possibility of damage to the already softened myocardium unless other medical measures have failed to improve the complete heart block.

## Summary

Twenty-nine patients with complete heart block complicating myocardial infarction have been reported. The data suggest that complete heart block is more likely to occur within the first week following the onset of acute posterior myocardial infarction. The mortality rate during initial hospitalization was 50 per cent, all but 2 patients dying with complete block. In surviving patients the block is evanescent but may be permanent. These findings are consonant with those of previous reviews. Therapy during the acute phase as well as long-term treatment has been discussed.

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Author's present address: Cardiovascular Division
George Washington University Medical Service
D. C. General Hospital
Washington, D.C. 20003

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# Perforation of the Interventricular Septum Following Acute Myocardial Infarction*

## Report of Five Cases

JOSEPH M. SOLINAS, M.D.

*Senior Resident in Medicine, Washington (D.C.) Hospital Center*

PERFORATION of the interventricular septum from an acute myocardial infarction is an uncommon but quite alarming entity. Mortality is so high that a prompt heroic surgical repair of the defect has been attempted even in the acute stage of the diseased myocardium.[1, 2] The results of such a tremendous procedure have been promising; thus the awareness and the recognition of this complication are of paramount clinical importance.

It is the purpose of this paper to review 5 cases from the autopsy files of the Washington Hospital Center and consider the particular aspects of the clinical diagnosis and hemodynamics.

### Report of Cases

**Case 1.** An 86-year-old white man with no past history of cardiovascular and gastrointestinal diseases was admitted to the hospital because of severe epigastric pain, hematemesis, and melena of 3 days' duration. The blood pressure was 70/50 mm. Hg, with a regular pulse of 76 per minute. The lungs were clear. A grade III/VI apical, rough systolic murmur was noted. The abdomen was soft with no guarding or tenderness. The hemoglobin was 12.5 Gm. per 100 ml. and the hematocrit 37 per cent. Four hours later an electrocardiogram (ECG) revealed a recent anterior myocardial infarction. Eight hours after admission the patient died in shock and pulmonary edema.

At necropsy the anterior branch of the left coronary artery was found to be occluded by an organized thrombus 2 cm. below its origin. In the interventricular septum near the apex there was a perforation 0.8 cm. in diameter. In the apical region there was a grayish-brown mural thrombus firmly attached to the endocardium. The esophagus revealed a 2 cm. pinkish-red, irregularly shaped erosion just at the junction of the esophagus and cardiac portion of the stomach.

This elderly man was admitted to the hospital because of an acute gastrointestinal illness. In retrospect, the disproportion between the rapid deterioration of the patient and the relatively normal hemoglobin and hematocrit was significant. The apical systolic murmur did not arouse suspicion.

It should be kept in mind that, especially in elderly patients, more prominent clinical conditions such as cerebrovascular, gastrointestinal, renal or pulmonary may overshadow coronary heart disease. In this case, perhaps, it is reasonable to assume that angiospasm, followed by hemorrhagic superficial necrosis of the mucosa of the esophagus, was a remote hemodynamic effect of acute myocardial infarction.

**Case 2.** A 65-year-old white woman in previous good health entered the hospital unconscious and in shock. The day prior to the admission she had complained of nausea and excruciating abdominal pain which radiated to the back. After antihypotensive measures the blood pressure was 70 mm. Hg by palpation and the pulse rate 95 per minute and regular. Three hours after admission an ejection type of systolic murmur grade III/VI was heard loudest in the third and fourth left intercostal spaces as well as a questionable diastolic blow. An ECG showed acute posterior myocardial infarction. Four hours after admission the patient went into deep coma and died in the fifth hour of hospitalization.

Necropsy showed severe atheromatous narrowing of the anterior branch of the left coronary artery with an old calcific occlusion 1 cm. from its origin. The myocardium of the superior and posterior part of the left ventricle and the adjacent septum and right ventricular wall were soft and mottled reddish-yellow. In this area there was a ragged septal perforation.

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**Case 3.** An 83-year-old white man had a past history of obstructive jaundice, cholecystectomy, prostatectomy, and recent resolving cerebral vascular insult. He entered the hospital 2 days after the onset of extreme weakness, which came on following a family argument. On admission the patient was pale, confused, and complaining of vague chest pain associated with extreme weakness. His blood pressure was 80/60 mm. Hg, and the pulse was 100 per minute and regular. The lungs were clear. There was a left parasternal, grade IV/VI, harsh systolic murmur. An ECG prior to admission showed an acute posterior myocardial infarction. The following day the blood pressure dropped to 65/46 mm. Hg. The murmur had a questionable short diastolic component, while the harsh systolic component remained unchanged. Rupture of a papillary muscle or a septal perforation was suspected.

The patient died 24 hours after admission in pulmonary edema and shock. At postmortem examination there was a 2 cm. linear septal perforation in the postero-apical region. The right coronary artery was obliterated by a fresh thrombus 6 cm. from its origin for about 3 cm. The lungs were congested.

**Case 4.** A 75-year-old white woman with no history of cardiovascular disease had a sudden onset of severe chest pain radiating to the left wrist and weakness. The patient was admitted to the hospital a few hours later because of persistence of the pain. The blood pressure was 150/60 mm. Hg, and her pulse was 60 per minute and regular. The lungs were clear. Auscultation of the heart was not remarkable. An ECG showed changes compatible with myocardial ischemia. During the night the patient had several attacks of chest pain, and on the following day an ECG demonstrated an anterior myocardial damage. The lungs revealed marked congestion, while a systolic blow was noted along the left sternal border. In the following days the clinical course was characterized by unresponsiveness, and pericardial friction rubs were heard over the xiphoid area. By the fifth day a more definite systolic murmur loudest in the fourth and fifth interspaces to the left of the sternum was heard. It was believed that the patient had perforation of the interventricular septum or rupture of a papillary muscle.

The patient died 5 days after the onset of symptoms and the same day on which septal perforation or papillary muscle rupture was clinically suspected.

At postmortem examination the myocardium showed a mottled brownish-red discoloration and decreased consistency of the apex, most of the anterior and lateral wall of the left ventricle, and the interventricular septum. There was 1 cm. septal perforation near the apex. The pericardial cavity contained 50 c.c. of pinkish blood-tinged fluid. The anterior descending branch of the left coronary artery was occluded by a fresh thrombus.

**Case 5.** A 78-year-old white woman was admitted to the hospital with a diagnosis of acute congestive glaucoma and senile cataract in the right eye. Complete iridectomy and lens extraction were planned for the following day. The blood pressure was 180/100 mm. Hg, and the pulse was regular and 70 per minute. The lungs were clear. No cardiac murmurs were heard. During the operation the patient had sudden respiratory arrest for about 30 seconds. The operation was completed and the patient was returned to her room in satisfactory condition. Five hours later she went into shock. The blood pressure was obtainable only by palpation at 80 mm. Hg. Basilar rales and wheezes were noted. A grade III/VI, harsh systolic murmur was heard to the left of the sternal border. Changes of acute anterior myocardial infarction were demonstrated in the ECG. Rupture of a papillary muscle or interventricular septal perforation was suspected.

The patient died 10 hours after surgery. At necropsy the myocardium revealed a diffuse area of necrosis and hemorrhage involving the entire septum. A septal perforation in the postero-apical region was found. The anterior descending branch of the left coronary artery was occluded by a fresh thrombus in a narrowed calcific area. The lungs were congested.

**TABLE 1: Summary of Cases of Interventricular Septal Perforation**

| Case No. | Age | Sex | Cause of death | Survival time | Antemortem diagnosis | Infarction | Systolic murmur along left sternal border |
|---|---|---|---|---|---|---|---|
| 1. | 86 | M | Shock, CHF | 8 hours | No* | Ant. | Grade III/VI |
| 2. | 65 | F | Shock, CHF | 5 hours | No† | Post. | Grade III/VI<br>? diastolic blow |
| 3. | 83 | M | Shock, CHF | 1 day | Suspected | Post. | Grade IV/VI<br>? diastolic blow |
| 4. | 75 | F | Shock, CHF | 5 days | Suspected | Ant. | "Systolic blow" marked pulmonary congestion |
| 5. | 78 | F | Shock, CHF | 10 hours | Suspected | Ant. | Grade III/VI |

In each of the 5 cases no palpable thrill was recorded and there was no electrocardiographic evidence of conduction disturbances. Antemortem diagnosis:

* Bleeding duodenal ulcer; acute anterior wall myocardial infarction

† Dissecting aneurysm of abdominal aorta; acute posterior wall myocardial infarction

Table 1 gives the pertinent data of the 5 cases reported.

## Discussion

Involvement of the interventricular septum, whether extensive or limited, occurs in about 80 per cent of all cases of acute myocardial infarction.[3, 4] Only 1 to 2 per cent of deaths are due to septal perforation.[5] The perforation usually occurs within the first 10 days, and in the majority of cases is located in the lower portion of the septum. The size of the perforation is approximately between 0.2 cm. and 3 cm. The pathogenesis of the perforation is not clear,[6] although a combination of factors such as extension of septal necrosis, age, physical activity, hypertension,[7, 8] and emotional stress have been entertained. The survival rate is low and has been reported in only a few cases. Sanders et al[7] found that 87 per cent of patients died within 2 months. Of these, 54 per cent died in the first week. Only 13 per cent survived 2 months to several years. Our cases are to be placed in the first category, the survival ranging between 5 hours and 5 days.

The clinical diagnosis of perforation of the interventricular septum is relatively simple when the typical findings are present. The sudden appearance of a harsh, pansystolic murmur, loudest between the apex and the sternum, associated with a palpable thrill are sufficient evidence. It becomes more difficult when myocardial infarction is associated with complicating conditions such as circulatory collapse, pericardial effusion, cardiac decompensation, arrhythmias, and changes in heart rate and blood pressure. Such hemodynamic alterations distort the auscultatory findings. Some authors[9] have pointed out that in their cases the murmur was not pansystolic at the time that frank pulmonary edema was present but became pansystolic only with compensation. The size of the defect, its variation with muscular contraction, the degree of pulmonary hypertension, and, thus, the resultant variable differences in pressure gradient between the right and left ventricle may all alter the intensity and timing of the murmur.

A diastolic sound was present in cases 2 and 3. Such a diastolic component has already been reported in patients with prolonged survival. It was always heard at the apex, leading to the antemortem diagnosis of rheumatic disease, and, because of a systolic murmur, aortic stenosis as a cause of ventricular failure.[10, 11, 12] Such a sound has been variously ascribed to dilatation of the heart, large openings, and associated ventricular aneurysms.[7, 11] It is more conceivable, perhaps, that a diastolic blow develops because the resultant left-to-right shunt leads to an increased blood flow across the mitral valve during the ventricular filling phase. The sudden appearance of a systolic murmur should make one aware of the following possibilities: perforation of the interventricular septum, rupture of a papillary muscle, pericardial friction rub, or functional mitral incompetence.

Craddock[13] in an analysis of 34 cases of myocardial infarction with rupture of a papillary muscle suggested specific criteria in its differentiation from perforation of the interventricular septum (table 2). The sounds of pericardial

**TABLE 2: Differential Criteria Observed in Ruptured Papillary Muscle and Perforation of Interventricular Septum***

| Ruptured Muscle | Perforated Septum |
|---|---|
| Murmur | |
| Present in about half of cases. Usually systolic; may be diastolic. Loudest in vicinity of cardiac apex. Usually high-pitched. | Found in over 90 per cent of cases. Nearly always systolic; usually of softer quality. Best heard in third and fourth interspaces parasternally. Not transmitted to axilla. |
| Thrill | |
| Has never been recorded. | Found in over half of cases. |
| Pseudorub | |
| Occasionally heard (13 per cent). | Never recorded. |
| Electrocardiographic Changes | |
| Usually shows exaggeration of original pattern of myocardial infarction but no unusual conduction disturbances. | May show advanced conduction disturbances. |
| Clinical Evidence | |
| Left heart failure is the rule. Usually death rather abruptly. Acute intractable pulmonary edema characteristic immediate sequela. | Congestive heart failure that is usually slower in onset. Venous and hepatic congestion likely to follow if patient survives. |

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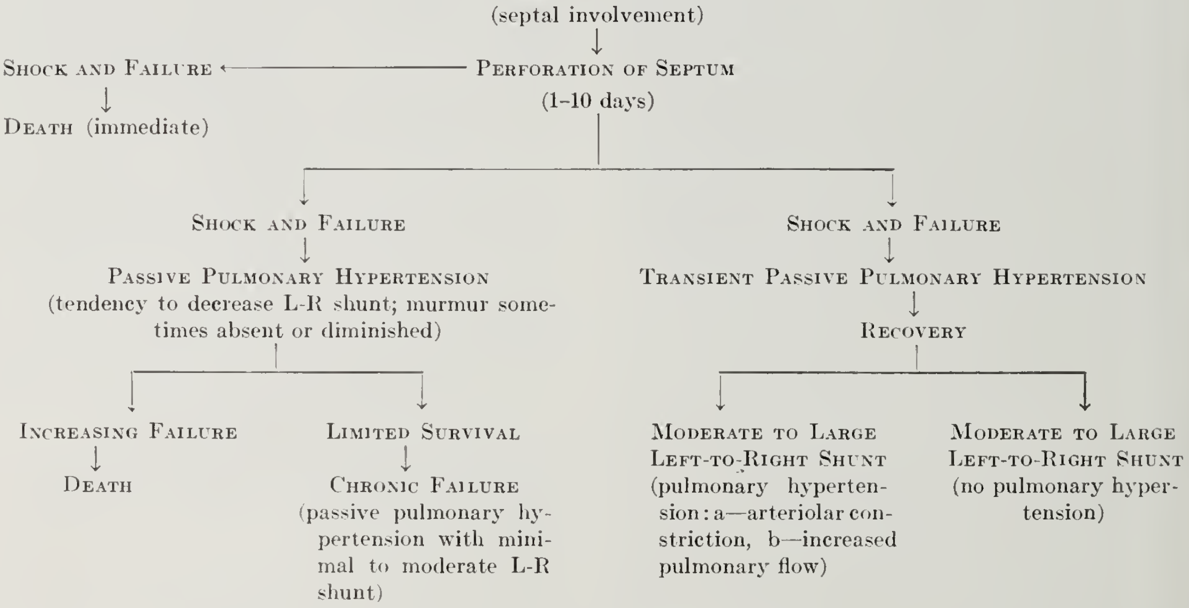
friction rubs can usually be differentiated from a septal perforation by its high frequency rasping quality. The variability of its intensity is a characteristic feature, usually increasing with normal inspiration. They are well localized in a small area between the apex and the left sternal border or in the ensiform region, in systole and in diastole.[14]

Less commonly the rubs can be widespread and are never associated with a palpable thrill. The murmur of relative mitral incompetence has a blowing character of high pitch; it is best heard at the apex, is transmitted to the axilla, is related to dilatation of the left ventricle, and a palpable thrill is usually absent. Occasionally in organic mitral incompetence a harsh apical systolic murmur with a palpable thrill can be recorded. The murmur begins simultaneously with or immediately after the first heart sound and may be transmitted to the axilla. This type of murmur seems to occur in conditions in which there is impaired function of the papillary muscle due to fibrosis or infarction.[15]

Perforation of the septum may follow 1 of 3 major patterns (table 3):

**TABLE 3: Myocardial Infarction**


(septal involvement)
SHOCK AND FAILURE
DEATH (immediate)
PERFORATION OF SEPTUM
(1–10 days)
SHOCK AND FAILURE
PASSIVE PULMONARY HYPERTENSION
(tendency to decrease L-R shunt; murmur sometimes absent or diminished)
INCREASING FAILURE
DEATH
LIMITED SURVIVAL
CHRONIC FAILURE
(passive pulmonary hypertension with minimal to moderate L-R shunt)
SHOCK AND FAILURE
TRANSIENT PASSIVE PULMONARY HYPERTENSION
RECOVERY
MODERATE TO LARGE LEFT-TO-RIGHT SHUNT
(pulmonary hypertension: a—arteriolar constriction, b—increased pulmonary flow)
MODERATE TO LARGE LEFT-TO-RIGHT SHUNT
(no pulmonary hypertension)

1. The resultant left-to-right shunt following perforation causes an excessive load on an already compromised myocardium resulting in diminished forward flow, failure, shock, and death.

2. Following perforation the added volume load of a left-to-right shunt causes failure of the left ventricle, and passive pulmonary hypertension occurs secondarily. The passive elevation of pulmonary vascular pressure may be the reason why in some cases the murmur may be absent or, if present, diminishes. Such patients may shortly succumb or may survive for limited periods in chronic left ventricular failure with passive pulmonary hypertension and relatively small to moderate left-to-right shunts.

3. Perforation results in transient left ventricular failure with passive pulmonary hypertension but complete recovery occurs, probably because of adequate myocardial reserve.

Hemodynamic studies in surviving individuals in pattern 2 reveal that the degree of left-to-right shunting is relatively small. This may possibly be a result of severe chronic left ventricular failure with a high degree of passive pulmonary hypertension as manifested by inordinately elevated left atrial and pulmonary artery pressures (table 4—see Rubenstein and Levinson and Gottsegen[16]).

In contrast, patients with pattern 3 have demonstrated strikingly high pulmonary blood flows relative to systemic flow attesting to the magnitude of the shunt. These high flows were maintained with no evidence of pulmonary hypertension. Indeed, in these cases pulmonary arteriolar tone actually decreased in order to accommodate such flows without an attendant rise in pulmonary artery pressure (table 4—see Gerbaux and Boicourt). In 1 case (Gerbaux) minor elevations of pulmonary artery pressure occurred, probably because of persistence of some degree of arteriolar tone although the total arteriolar resistance was not significantly changed.

**TABLE 4. Summary of Cardiac Catheterization Data in Patients with Rupture of the Interventricular Septum†**

| | Authors | Gerbaux, et al.[13] | | Cooley, et al.[23] | Shickman, et al.[25] | Rubenstein and Levinson[26] | Muller, et al.[16] | Gottsegen, et al.[14] | Boicourt, et al. |
|---|---|---|---|---|---|---|---|---|---|
| | Age, sex | 68 M | 56 M | 49 M | 61 M | 60 F | 58 M | 52 F | 57 M |
| $O_2$ Saturation (per cent) | RA | 59 | 66 | 75 | 54 | 5.7* | 53 | 48 | 53 |
| | RV-High | 97 | 67 | 88 | 87 | 9.4* | 71 | 65 | 90 |
| | RV-Low | 83 | 83 | 88 | 87 | .. | .. | 52 | .. |
| | PA | 80 | 80 | 86 | .. | .. | .. | 66 | 83 |
| | SA | 97 | 92 | .. | .. | .. | 77 | 87 | 91 |
| Pressure (mm. Hg) | RA (Mean) | (8) | (8) | 8/3 | 15/6 | .. | .. | (20) | (6) |
| | RV | 86/7 | 25/8 | 18/7 | 69/9 | 74/10 | 88/− | 90/−8 | 39/4 |
| | PA | 86/20 | 25/11 | 15/8 | .. | 72/22 | 88/− | 100/17 | 39/16 |
| | PCP (Mean) | (13) | (10) | 11/6 | .. | 28/25 | .. | 42/40 | .. |
| | SA | 120/60 | 84/50 | .. | .. | .. | .. | 150/90 | 90/62 |
| Blood flow (L./Min.) | Systemic | 7.1 | 5.4 | .. | .. | 1.8 | 5.8 | 3.5 | 3.2 |
| | Pulmonary | 13.8 | 12.5 | .. | .. | 4.0 | 11.0 | 6.7 | 17.6 |
| | L-R Shunt | 6.7 | 7.1 | .. | .. | 2.2 | 5.2 | 3.2 | 14.4 |

* Oxygen in volumes per cent.

† Reprinted by permission of the American Heart Association, Inc. from Boicourt et al.[2]

## Summary

Five cases of perforation of the interventricular septum following acute myocardial infarction have been presented. The diagnosis should be considered when the patient with myocardial infarction develops a harsh pansystolic murmur with or without a thrill along the left sternal border and sudden and dramatic deterioration occurring during the clinical course of resolving myocardial infarction.

The available hemodynamic data have been briefly reviewed in an attempt to explain the clinical features.

I wish to express my appreciation to Dr. T. W. Mattingly, Chairman, Department of Medicine, and Dr. James M. Bacos, Chief, Cardiovascular Laboratory, Washington Hospital Center, for their suggestions in the preparation of this manuscript. I also wish to express my deep gratitude to Dr. H. Edmonds, Senior Attending, Department of Pathology, for allowing me to review the autopsy material.

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# Congestive Heart Failure Associated with Sickle-cell Anemia

## Report of a Case in a Child

**ALTHEA D. KESSLER, M.D.**

*Professor of Pediatrics, Howard University College of Medicine*

**ROLAND B. SCOTT, M.D.**

*Professor and Head, Department of Pediatrics, Howard University College of Medicine; Chief Pediatrician, Freedmen's Hospital, Washington*

ALTHOUGH ENLARGED HEARTS and hemic murmurs are characteristic of sickle-cell anemia (SCA), congestive cardiac failure is not as commonly encountered in this disease as might be expected. We are reporting a case which is unusual in that although the hemoglobinopathy was associated with congestive heart failure, an etiologic relationship could not be definitely established. On the other hand, there was no known condition, either congenital or acquired, to account for the congestive failure.

This case is being reported with the hope that other observers will report similar experiences together with an explanation for the heart failure in the absence of severe anemia and/or complicating infection.

### Report of Case

A 5-year-old Negro boy was admitted on March 20, 1962 with complaints of swelling of the legs and face for 2 days and a weight gain of 5 pounds during the preceding week. Sickle-cell disease of the SS type had been diagnosed at 1½ years of age. There were 3 previous hospitalizations, all for sickle-cell crises and pneumonia. On the third admission he was digitalized because of tachycardia, gallop rhythm and cardiomegaly. He had not been maintained on digitalis prior to this admission.

On admission he was a pale, dyspneic child with facial and pedal edema. The temperature was normal, the pulse rate 140 per minute, and the blood pressure 140/50. There were moist rales at the base of the right lung. The cardiac rhythm was regular, and there were no murmurs. The chest X-ray film showed marked cardiomegaly and increased bronchovascular markings. Skull films showed thickening of the tables with typical "hair-on-end" trabecular markings. The electrocardiogram revealed right axis and right ventricular hypertrophy (figure 1).

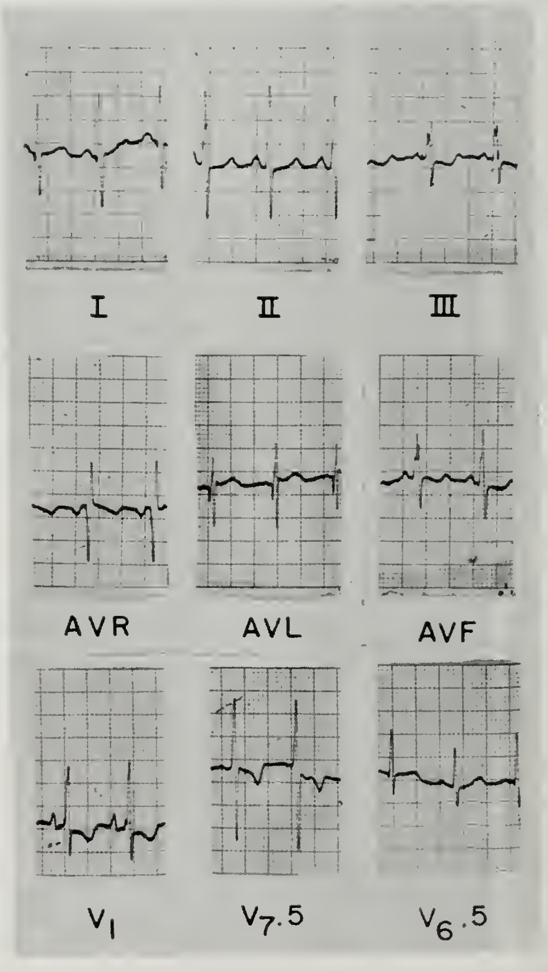

**FIG. 1. Electrocardiogram made 2 weeks after admission. Note right axis, tall late R in AVR, and Rs pattern in $V_1$.**

The laboratory findings on admission were as follows: hemoglobin 11 Gm., hematocrit 33 per cent, red blood cell count 2.5 million, corrected white blood cell count 42,000, total bilirubin 3.8 mg.; blood urea nitrogen, $CO_2$ combining power, sodium, potassium and total protein all within normal limits. During the rest of his hospital course the hemoglobin varied from 6.5 to 10.2 Gm., and the reticulocyte count ranged from 3.5 to 8.8 per cent.

Treatment consisted of a low-salt diet, oxygen, penicillin, and Digoxin.® Edema and dyspnea disappeared in the course of a few days. The boy became febrile for 2 days during the course of an upper respiratory infection which began 2 weeks after admission. At this time a fall in the hemoglobin necessitated 2 small transfusions. The patient was not jaundiced during this admission.

In order to rule out congenital heart disease, cardiac catheterization was done under general anesthesia on June 7, 1962. The findings were as follows: pulmonary artery pressure 47/18, right ventricular pressure 47/—2, femoral artery pressure 123/67, pulmonary wedge pressure 14, femoral arterial oxygen saturation 84 per cent, pulmonary arterial oxygen saturation 45 per cent, cardiac index 5.9 liters per minute per square meter. There was no evidence of an intracardiac shunt.

The child was discharged on a maintenance dose of Digoxin and continued to do well. One year later he underwent an uneventful tonsillectomy. An X-ray film at this time showed cardiomegaly and prominent bronchovascular markings (figure 2).

Pulmonary function studies were done on August 28, 1963, when he was asymptomatic. The results were as follows: minute volume respiration 8.14 liters per minute, maximal breathing capacity 20.34 liters per minute, breathing reserve 12.20, vital capacity 760 ml., and expiratory reserve volume 54 ml. All of these figures are somewhat low.

### Discussion

Cardiomegaly and murmurs in SCA are usually attributed to the increased cardiac output necessitated by a severe chronic anemia,[1-6] accentuated by the low arterial oxygen saturation which is a property of the SS erythrocyte.[7, 8, 9] Our patient had a high cardiac output and decreased peripheral arterial oxygen saturation.

In a child with sickle-cell crisis accompanying a severe infection, especially pneumonia, there may occur such symptoms as tachycardia, dyspnea, swelling of the hands and feet, cardiomegaly, and hepatomegaly. These findings may lead to a suspicion of congestive heart failure, but in such a situation digitalization produces no dramatic results. Disappearance of symptoms usually coincides with control of infection and improvement of the anemia. In a severely anemic child there may be a definite decrease in heart size after blood transfusion.

Frank congestive heart failure in SCA occurs more often in adults than in children.[3, 10] In the majority this is apparently due to left-heart failure from output overwork. Catheterization data on asymptomatic sickle-cell patients as well as those who have been in failure tend to support this view.[4, 5, 6]

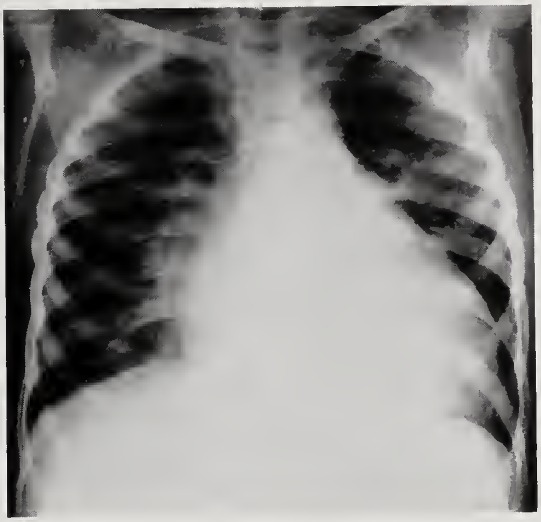

FIG. 2. Chest X-ray film made 1 year after admission showing cardiac enlargement and hilar densities.

Although young children with SCA are quite susceptible to pneumonia they do not commonly show evidence of chronic pulmonary disease. In adult patients chronic pulmonary disease is common as shown by autopsy findings of thrombosis, medial hypertrophy of pulmonary arterioles, obliterative endarteritis, and diffuse interstitial fibrosis.[1, 2] Vital capacity may be reduced even in those with few pulmonary or cardiac signs.[5, 8] One might expect pulmonary hypertension and right ventricular hypertrophy as a result of these vascular changes. Cor pulmonale has been described in adults with SCA.[11, 12, 13]

Our patient had moderately elevated pulmonary artery and right ventricular pressures, abnormal pulmonary function tests, and electrocardiographic evidence of right ventricular hypertrophy. These findings suggest a diagnosis of cor pulmonale. Congenital heart disease was ruled out by the absence of intracardiac shunts. The cardiac output was only moderately increased, the hemoglobin level was 11 Gm., and the hematocrit was 33 per cent at the onset of failure so that we need not consider high-output failure secondary to severe anemia.

It is pertinent to point out that Brinsfield, Edwards and Watkins[14] have recently reported 3 cases of left ventricular hypertrophy, 1 with congestive heart failure in nonanemic heterozygous carriers of sickle hemoglobin (sickle-cell trait). Studies suggested myocardiopathy, but the etiology was obscure.

## Summary

We have presented a case report of a 5-year-old child with sickle-cell anemia and congestive heart failure. The patient was not severely anemic nor in a sickle-cell crisis at the onset of failure. There was evidence of right ventricular hypertrophy and moderate pulmonary hypertension. He responded well to digitalization. It was not possible to establish an absolute etiologic relationship between the blood disorder and the heart failure, although there was no other apparent cause for the cardiac complication.

It is postulated that the presence of sickle hemoglobin alone may be responsible for this complication in the absence of anemia.

We wish to express our appreciation to the following: Dr. John B. Johnson, Professor of Medicine, Howard University College of Medicine, for cardiac catheterization data, and Dr. Roscoe C. Young, Instructor in Chronic Pulmonary Disease, for pulmonary function studies.

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(*Continued from page 420*)

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# Torts and Retorts

**MAURICE H. HERZMARK, M.D.**
*Washington*

WHEN you're hurt and assert
That you know what it's worth
In a court
A PHYSICIAN with vision
Describes his decision
In a report.
A LAWYER like Steuer
Writes your grief in a Brief—
That's a Tort!

### Lawyer versus Physician in Court

By definition a medical witness is any physician who gives testimony in a case under litigation.

By tradition any physician who is a medical witness is a target to shoot at with questions designed by the opposing attorney to refute, confuse, confound, irritate, impugn, disprove and thus try to mitigate or negate the statements which on direct testimony were damaging to his case.

By training and experience a physician considers what is with what might have been in dealing with disease. A lawyer thinks in terms of what is in relation to what was. This conflict in philosophy is what makes a physician feel as out of place on the witness stand as a lawyer in an operating room. When doctors give opposing points of view, one for the plaintiff and one for the defendant, the lay public tends to conclude that the truth lies somewhere in between. This is not necessarily so, since, out of court, physicians tend to have very diverse opinions. Even when physicians appear on the same side a considerable difference of opinion may be expressed. The following case is illustrative.

### The Mended Vase

A middle-aged woman fell and fractured her ankle as a result of the negligence of a store employee. She was referred to a very competent orthopedic surgeon who reduced the fractures and in time obtained a very satisfactory result. Both the patient and the physician were pleased with the end-result. The minimal residuals of moderate swelling and some stiffness were regarded as not too disabling, but the patient thought she should be well compensated for pain, loss of time, medical expense, and transportation by cab during treatment. Although the liability was indisputable, the defendants, learning of the excellent end-result, were reluctant to offer anything close to the patient's expectations. When her lawyer discussed the case with her physician all he heard was what a fine result had been obtained. Realizing that a jury would not be moved to make more than the modest award offered by the defendants, the lawyer decided to obtain another medical opinion unbiased by the pride of professional achievement. The woman was referred to my office where an examination showed the fractures well-healed, in good alignment, etc., but the affected ankle was larger than the other and the range of motion at the ankle impaired about 20 per cent. I was invited to appear as a medical expert at the trial. The lawyer informed me that I would follow the treating physician.

When I arrived the physician was in the witness chair. His testimony was, as expected, that he had obtained an excellent result with a fracture that often does not respond so well, and on cross-examination he confirmed his opinion. Hearing this, I knew that the jury would be inclined to make a very modest award.

On direct testimony I described the examination as revealing a good result with a bad fracture, but nevertheless I mentioned the swelling, the impairment, and the possibility of pain on stress or changeable weather. I further brought out on questioning by the plaintiff's attorney that the residuals were permanent, since several years had elapsed since the time of the injury. The opposing attorney seemed vexed that, having obtained so favorable a report by the treating physician, here was I upsetting his case. He approached the witness box in an angry mood.

Lawyer: "Doctor, you were in the courtroom when the orthopedist who treated the plaintiff in this action plainly stated that he had obtained an excellent result, were you not?"

Witness: "Yes."

Lawyer: "And you, who examined her only once and never saw her immediately after the fall, have come to a different conclusion. Isn't that so, Doctor?"

Witness: "No, I stated that considering the nature of the injury the end-result was very satisfactory, but nevertheless there are some permanent residuals which leave the ankle not as well off as it was before the injury. To help you and the court understand my point of view, let us consider a very beautiful and delicate vase. It is rare and very valuable. One day someone handling it negligently allows it to fall and break. A very skilled vase-mender is called upon to restore it as best he can. He does a fine job and when the work is finished only an expert can tell it has been mended. The owner is very pleased, but he has a mended vase. A great deal of value if not the beauty has been lost. So it is with the lady whose ankle I examined and described in this court. She has a mended ankle, skillfully mended without doubt, but mended. It is not the same as it was before, nor will it ever be. Only God can make a perfect ankle, and a skillful surgeon can only follow God's pattern."

There was hardly any need to continue the cross-examination. The jury caught the picture and the idea that a mended ankle is like a mended vase.

The award was much higher than the offer before trial.

Both physicians told the truth as they understood it. The attending orthopedic surgeon, true to the philosophy of his profession, was concerned with a comparison of what is with what might have been. Viewed in that light he was justified in his testimony. But law and justice are concerned with a comparison of what is with what was and an estimate of the compensable loss. The medical witness should understand this important difference because he is there in court to help the layman reach a just verdict.

Lawyers who specialize in torts tend to learn a great deal about medical terminology and make use of this in cross-examination. Sometimes the attorney hearing some technical term used by a physician will even translate it for the jury. The atmosphere of a courtroom is usually serious and even austere. But, while levity has no place at a trial, a little humor or an unexpected reply by a witness can change the complexion of the case. The lawyer who is tempted to show off his medical knowledge may find that it can backfire if the witness can think of a witty retort. The following case is a good example.

### A Lesson in Applied Anatomy

The case involved a man who while a pedestrian was struck in the back by a taxicab. He was brought to a hospital where he came under my care. The diagnosis was "lumbosacral contusion and possible subluxation." After suitable treatment the man made a satisfactory recovery. About a year later I received a subpoena to appear as a medical witness to describe his injuries. Upon completion of all the details, with X-ray films, etc., a large, stout young man arose and approached me in a very angry mood.

Lawyer: "Doctor, did you obtain a history of a previous accident sustained by the plaintiff in this action?"

Witness: "No, I did not."

Lawyer: "I would like to read to you the transcript of medical testimony given in this very court about a year ago. This plaintiff was involved in a similar accident, incurred the selfsame injury, and was awarded $2,000.00."

The lawyer then read a long transcript describing injuries sustained when a taxicab struck him in the back. I listened intently for the diagnosis, and at the end it was described as a "sacro-iliac subluxation." When the lawyer had concluded he was a beautiful example of "justice outraged."

Then he shouted, "Isn't this the self-same injury in the self-same place under the self-same conditions?"

I replied, "No, it appears to me that the injury I treated involved the lumbosacral joint, whereas the injury described in the transcript was a sacro-iliac injury." This really infuriated the attorney.

"Where is the sacro-iliac joint, Doctor?" he shouted. I answered, "Between the sacrum and the ilium."

Lawyer: "Show us where it is, Doctor."

Witness: "If you have a skeleton or anatomical chart, I can point it out."

Lawyer: "Where do you think you are, Doctor, in a medical school?

"This is a court of law, and we have no skeletons or charts. Demonstrate it on yourself."

Witness: "It is too deep; it won't show."

Lawyer: "I'll show you where it is."

Whereupon he lifted the lower part of his jacket, revealing a large well-rounded buttock, and backing up toward me he placed his large hand over the area under which he felt was the sacro-iliac joint and continued to raise and lower his hand, meanwhile shouting, "Isn't that where it is, Doctor?" As he backed toward me the buttock loomed larger and larger. I put on my glasses and peering over the edge of the witness-box I said, "From where I sit it seems to me that you are simply patting yourself on the buttock."

The courtroom resounded with laughter. The lawyer's face turned crimson, and every time he attempted to continue the cross-examination the laughter resumed. He retired to his chair, and I was excused. My patient got a very generous award from the jury.

The cross cross-examination backfired because the medical witness injected a little humor, made possible by the cross-examiner using himself as an example.

But humor should not be confused with levity. The success of the humor displayed by the witness was due to the atmosphere created by the cross-examiner. A medical witness must not try to be funny; then he can become the butt of the attorney. Each case must depend on the situations that present themselves.

The very solemnity of the atmosphere in a courtroom offers the physician an opportunity to turn the tables on his tormentor by using a little humor or a surprise answer.

### Surprise—Surprise

Illustrative of this is a recent trial at which I appeared as a medical witness. On the direct testimony I read reports which described the history which stated that the patient was a passenger in an automobile which, while motionless awaiting a traffic signal, was struck by a streetcar. The impact caused a blow on the head, a subluxation of the temporomandibular joint, and a cervical sprain. Treatment resulted in alleviation of the cervical sprain and corrected the temporomandibular pain and clicking. A few weeks prior to trial a reëxamination revealed no complaints other than postconcussion headache.

The opposing attorney, hearing this, decided that if he could only eliminate the headache his case would be strengthened. When he started his cross-examination he inquired about several other cases in which he had occasion to cross-examine me. Before I could reply the attorney for my patient arose and offered an objection. He said, "If the attorney wishes to reminisce with the doctor, I think it should be done without using the time of the court." The judge sustained the objection and admonished the lawyer to stick to the direct testimony.

Lawyer: "Doctor, isn't it true that there are 2 kinds of symptoms, objective that can be observed by the examiner, and subjective which can be felt only by the patient?"

Witness: "That is true."

Then the lawyer asked a surprise question: "Doctor, can you tell if I have a headache right now?"

I pondered the question. At first I was inclined to retort that patients do not ask such a question. They complain positively about headache. But I decided that the surprise question designed to embarrass me was entitled to a surprise answer. So I replied, "Considering the circumstances of this case, I think you do have a headache right now."

Of course the court laughed. But the lawyer was not to be put off. He was a bit annoyed but determined to show that I could not really know. So he parried with the next question, "Doctor, but you don't know for certain, do you?"

Witness: "No, but judging from your distressed appearance, I am inclined to believe that you do have a real headache."

This turned the tables and prevented the carefully planned interrogatory from ending in the syllogism which would have eliminated the headache.

My patient was awarded about twice what she had expected.

### To Tell the Truth

Sometimes attorneys plan to minimize the damages by the strategy of confusion. This may succeed if the plaintiff's lawyer does not recognize the scheme and gets lulled into complacency. Since the witness must rely on his patient's attorney to protect him by objecting to irrelevancies, when he fails to do so the witness may be maneuvered into discussing matters not pertinent to the case.

From the witness stand considerable strategy was needed on my part to offset the failure on the part of the patient's attorney to protect his witness and illustrates what a physician can do to turn the tables on a wily scheme. The following case is a good illustration.

A young woman wearing fashionable, high-heeled shoes entered a bank one morning while the porter was washing the marble floor. He had spread some soapy water on the floor, and the young lady fell and broke her ankle. She was taken to her home, and a physician was called. Noting the fractured ankle, but not being a surgeon, he referred her to my office for care. The fractures were reduced, a plaster-boot applied, and the usual aftercare given. In time she made a satisfactory recovery except for the usual residuals of swelling and moderately impaired function. The young lady brought suit, and in time I found myself in the witness chair giving direct testimony. The fractures were described, X-ray films shown, the treatment outlined, and the residuals estimated.

The counsel for the defendant began his cross-examination.

Lawyer: "Doctor, as a qualified orthopedic specialist you have had occasion to treat a great many sprained ankles, isn't that so?"

Witness: "Yes."

Lawyer: "Isn't it true that a sprained ankle is treated by the application of a plaster cast?"

Witness: "Yes."

Lawyer: "A sprained ankle may take up to 2 months to heal, isn't that so?"

By now I was beginning to wonder why the lawyer for the plaintiff did not object. But, although no mention was made of a sprained ankle on direct testimony he kept doodling on a scratch-pad.

The defense attorney continued asking me about sprained ankles. Not once was anything said about a fractured ankle. After 45 minutes of questioning about sprains I suppose the jury and perhaps even the plaintiff's attorney had forgotten about the fracture. Finally the defendant's attorney said, "No further questions."

Then the judge waited for the plaintiff's attorney to question me on redirect to establish the true nature of the injury. But he just sat there. So the judge said, "Doctor, you may be excused."

I was in a quandary. Here I was cross-examined on a type of injury that was not mentioned on direct examination and which most laymen consider much less damaging than a fracture, and the plaintiff's attorney did nothing to correct this. I hated to leave the court with the impression that the injury was a mere sprain, so I suddenly turned to the judge and said:

"Your Honor, what is the proper procedure when a witness feels he has not told the whole truth?"

The judge replied, "Then he should tell the whole truth."

"Your Honor," I requested, "May I be permitted to tell the whole truth in narrative form without interrogation and interruption?"

"Granted," said the judge.

I thereupon proceeded to call attention to the fact that the entire cross-examination was devoted to the subject of sprained ankles, whereas on direct testimony I had plainly stated that the injury treated was a fracture and that the cross-examination was not directed to the case under consideration but to the general subject of sprains, which were not in issue.

Thereupon both attorneys jumped to their feet, each demanding to interrogate.

But the judge waved them both down, saying, "Gentlemen, you had your opportunity to interrogate the witness." Then turning to the plaintiff's lawyer he said, "You may ask only 1 question on redirect."

Lawyer: "Did you treat a sprain or a fracture?"

Witness: "Both, for you cannot have a fracture without a sprain, but the fracture is what has left the permanent partial disability and not the sprain."

I was then allowed to leave the court. The strategy of the defendant's lawyer almost succeeded and would have successfully minimized the damages if the medical witness had not found a way to defeat the scheme.

As a rule lawyers prepare their cases to avoid surprises, and a physician who comes to court as a medical witness usually knows what to expect. If he has treated a patient who becomes a litigant, he has obtained a history and made several examinations which are the basis for reports furnished the attorney. Even so, surprises are sprung because the opposing attorney has managed to find some evidence that he thinks would offset or negate the testimony of the physician. The medical witness is thus sometimes called upon to do some quick thinking. The lawyer who handles cases in which medical evidence is involved must be familiar with medical terms and be alert to recognize the meaning of certain words used in describing the changes noted in laboratory reports, such as X-ray films, electrocardiograms, blood tests, tissue examinations, and such.

The following case illustrates how 2 medical witnesses with opposing points of view were confronted with surprises and how their answers decided the verdict. But it also illustrates that a medical witness should read all of his reports before coming to court.

### Progressive Changes

A once wealthy wine importer developed a very painful back condition as a result of arthritis. During his prosperous days he bought a policy which stipulated that if he became ill he would receive a specific sum of money every month and a waiver of premium, and if the illness persisted and rendered him permanently disabled before age 60 he would be entitled to benefits for life. When his painful back made him unable to conduct his business he made a claim, was examined by the physician designated by the insurance carrier, and was found to be temporarily totally disabled, thus entitled to the benefits. The patient sought relief for his condition by consulting specialists both in America and in Europe, but most physicians informed him that his disease was incurable. He finally resigned himself to his fate and was satisfied with temporary alleviation of his pain through physiotherapy and medication. Treatment was given 2 or 3 times a week for a year at my office, but it was made plain that no cure or reversal of the disease could be anticipated. The patient was now 59 years of age, and if the disability persisted beyond age 60 he would receive the benefits without further examination. He was invited to present himself for an evaluation by the same physician who formerly examined him. The doctor inquired who had been treating him and on being told expressed satisfaction at the good results obtained and then sent him to the X-ray department for new films. Following this he received a letter from the insurance carrier that he had been found to have recovered and that benefits would be discontinued. And there was also a notice of premium due.

The patient came into my office waving these documents, greatly distressed.

"You know I haven't recovered, Doctor," he said. "If I don't come regularly for treatment, my back begins to hurt me. You told me there is no cure. What am I to do? I have no business, I can't work, and I have to depend on the insurance money to support my family. What should I do?"

"Engage a lawyer," I said. "Maybe he can persuade the insurance company to reconsider."

"But I don't know any lawyers who can handle this kind of case."

"I can recommend an excellent lawyer," I said. "I understand he represents a very large insurance company, and if your company is not his client he can perhaps take your case."

The lawyer was consulted; he thought the case had merit, and on request a complete medical report was prepared. Negotiations for settlement somehow failed, and the case came to trial. I was notified to appear as a medical witness. On the direct examination I stated the name of the disease, showed X-ray films showing marked calcification of ligaments and spurring of bones, and concluded that the patient had an incurable disease which was totally disabling.

The opposing attorney arose to cross-examine.

Lawyer: "Doctor, you stated that the disease was incurable. Why did you give the plaintiff in this action such a long period of treatment?"

Witness: "To alleviate suffering."

Lawyer: "You stated he was totally disabled."

Witness: "Yes, in my opinion he is."

Lawyer: "I show you a document [putting a small card on my ledge]. Tell me what this is."

Witness: "It is a license to drive a motor vehicle in the state of New York."

Lawyer: "Read the questions and answer on the reverse side."

Witness: " 'Do you have any physical defect that would prevent you from operating a motor vehicle?' Answer: 'No.' "

Lawyer: "If the plaintiff is able to operate a motor vehicle wouldn't that prove that he is not totally disabled? People operate motor vehicles as a means of livelihood, don't they?"

Now, here was a surprise. I did not know that my patient owned an automobile, let alone a permit to operate one. On the many occasions he came to my office he invariably arrived on foot from the nearest subway station. He had never mentioned to me anything about a car or whether I thought he might drive one. A false answer to any of the questions pertaining to the physical capacity to operate a motor vehicle could subject the operator to arrest and fine.

I wondered how to get out of this dilemma. Then it suddenly occurred to me that he was a layman, had answered without medical advice, and so was not responsible for medical opinion. So I replied, "I was not consulted concerning the question when he wrote the answer, for if he had I would have advised against it. He has the physical capacity to operate an automobile, but because of his sudden attacks of pain resulting from certain movements, he could lose control and endanger others beside himself."

When I was leaving the courtroom the plaintiff's attorney whispered to me, "What do you know about Dr. B. who is coming to testify that the disability is no longer totally incapacitating?" I whispered back, "He will not knowingly tell a falsehood under oath."

Little did I realize then how valuable this bit of information could turn out to be. Dr. B. on direct testimony stated that when he first examined the plaintiff at age 58 he was suffering from spondylitis deformans, which is a very disabling disease, but when he reëxamined him the following year he had improved as a result of persistent and competent treatment under my direction, so that the disability had been largely alleviated.

The plaintiff's attorney began his cross-examination, bearing in mind my hastily whispered characterization.

Lawyer: "Doctor, do you have with you notes or medical records to refresh your memory concerning this case?"

Witness: "Yes."

Lawyer: "May I see the paper which you have been reading to guide you?"

Witness: "You may" (handing the report to the attorney who read it over very carefully).

Lawyer: "Doctor, I see at the bottom of the page a report from the roentgenologist which reads as follows: 'X-rays made recently compared with those taken previously show progressive changes involving nearly all of the intervertebral articulations.' Isn't it a fact that when physicians report progressive changes they mean that the disease is progressing and not the cure?"

Witness: "Yes."

Lawyer: "Doctor, would you like to revise your statement that the patient has improved, considering the X-ray report?"

Witness: "Yes."

Lawyer: "Isn't it true that, based on the X-ray findings the patient has actually gotten worse and not improved as you previously stated?"

Witness: "Yes, I suppose so."

Lawyer: "No further questions."

If the lawyer were not guided by my tip, he would not have ventured to ask the foregoing questions for fear the doctor would insist that he is entitled to express his opinion based on his clinical examination.

The jury found for the claimant, and the benefits were restored for life.

The foregoing cases are illustrative of the varied attitudes and strategies employed by attorneys in trials. But one thing they have in common—each lawyer tries to win his case, by his wits, personality, histrionics and psychology. It is only natural that a witness soon realizes that there is a battle of wits between opposing attorneys and even between attorneys and the judge. Thus he tends to join the battle and pit his wits against the interrogator.

Justice is supposed to be blind, but there seems to be a growing tendency in many of our courts to regard her as nearsighted or astigmatic.

## Clinical Center Study of Thymomas

THE COÖPERATION OF PHYSICIANS is requested in a study of serums from patients with thymomas, being conducted at the Clinical Center by the National Cancer Institute.

Serums from patients with both thymomas and myasthenia gravis reveal the presence of cross-reacting auto-antibodies directed against thymic epithelial cells and skeletal muscle. Such reactivities are absent in the serum of normal individuals and individuals with a wide variety of diseases.

However, the Institute's present shortage of serums from patients with thymomas who do not have myasthenia gravis is delaying attempts to elucidate the possible pathogenetic relationships between auto-immunity and the myasthenia gravis-thymoma syndrome in particular, and thymic pathology and immunologic abnormalities in general.

Assistance is asked in obtaining small serum samples from (1) patients with present evidence of anterior mediastinal tumors suggesting thymomas, with or without associated myasthenia gravis aplastic anemia, etc., and (2) those with histories of resected thymomas.

A single 10–30 ml. bleeding from each patient is all that would be required. Containers and postage for the serum samples will be provided by the Institute on request. Serum samples, not clotted blood specimens, should be sent to the National Institutes of Health. A report of findings will subsequently be sent to the physician.

There are no present plans to admit patients with the above described conditions to the National Cancer Institute. This does not, however, preclude such a future possibility, or an interest by investigators in other Institutes.

Physicians who are interested in assisting with this study may telephone or write to Dr. Arthur J. L. Strauss, Clinical Center, Room 12-N-258, National Institutes of Health, Bethesda, Md. 20014; telephone: 656-4000, ext. 66381.

# PRESIDENT'S PAGE

## TETANUS AND SMALLPOX IMMUNIZATIONS

The Oral Sabin Polio Vaccine Program completed in June is an inspiring example of free medicine dedicated to the eradication of one of the most dread diseases to afflict mankind. Through this program the public as a whole has become better acquainted with the role played by the physicians and medical societies. Our task now is to continue to inform the public as to how and why we serve them. How can this be done best?

One avenue is to urge public acceptance of other immunization programs which the AMA has urged all state medical societies to promote to assure widespread protection, i.e., immunization against tetanus and smallpox.

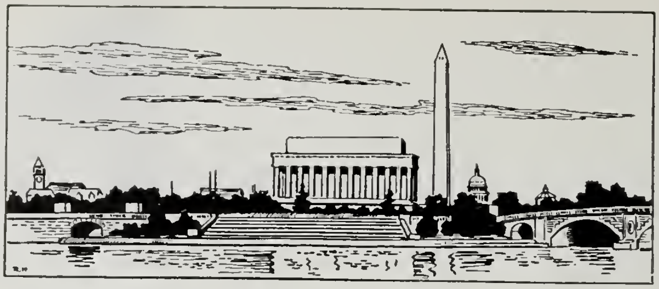
Here is an area where the private physician can assume a prominent role. The D. C. Director of Public Health, Dr. Murray Grant, has pointed up the danger of a smallpox outbreak in the Washington area because of the number of persons unvaccinated or whose immunization protection over the years has been lost. It is especially important here because thousands of individuals arrive in this city from endemic areas overseas who by diplomatic courtesy are not required to comply with our health regulations.

Tetanus is a preventable disease when proper immunization measures are taken, yet a large number of cases occur in this country every year and with a high mortality rate. Even one course of tetanus toxoid gives some degree of protection lasting 10 years or longer. With the high accident and injury rate in the United States it would seem imperative for everyone to receive this protection. It is known that tests for sensitivity to tetanus toxin-antitoxin are unreliable and that even when sensitivity to serum is shown, desensitization can be extremely hazardous. For this reason human tetanus immune globulin is recommended instead of the usual horse or bovine type for immediate protection when indicated.

Every Washington physician should, therefore, consider immunization programs in his own office for all of his patients assumed to be susceptible to smallpox or tetanus. Since memories of patients regarding previous immunizations are notoriously short, some sort of written record should be given to all patients immunized.

Here, then, is another opportunity, as with polio, for physicians to contribute to the health and protection of the community, but this time, in his own office, as a professional service to his patients.

Edward W. Nicklas



# EDITORIALS

## A Salute to Pennsylvania and Alumni

A University of Pennsylvania Convocation on September 19, 1964 will strike the keynote for the official opening of the Bicentennial of Medical Education in the United States. The observance will mark the 200th anniversary of the founding of the University's School of Medicine, the first medical school established in this country.

To recognize this important event, the Editor of the Medical Annals requested one of the School's alumni, Colonel John Boyd Coates, Jr., to write an article describing the founding and development of the Nation's first medical school. It appears in this issue of the Annals and we hope our readers will enjoy it.

The Annals' staff has been furnished a list of the medical alumni of the University who reside in this area. Included in the list are the following members of the D. C. Medical Society: Colonel Coates, Drs. J. Robert Andrews, William F. Burdick, Leo B. Gaffney, David W. Harris, Dorothy B. Holmes, Howard T. Karsner, Clapham P. King, John W. McTigue, R. Bretney Miller, Matthew White Perry, Edward B. Price, Jr., John A. Reisinger, Robert G. Taylor, Earle B. Thompson, and J. Ross Veal.

A salute to the University of Pennsylvania and all its alumni! It is good to know that the bread of scientific knowledge in Washington is well leavened with ferment from such a proud and venerable institution as the University of Pennsylvania.

## Community Health Week

Community Health Week will be observed October 18–24. For physicians it is a time to reflect upon the level of health in our community, noting the strides already made and seeking ways we can help to better it.

Certainly the most obvious contribution made by all the physicians in the area during 1964 was in the mass immunization program against poliomyelitis. The response from physicians of all specialties and fields of interest was dramatic. The response of the public itself was most rewarding.

Immunization in general has played a major role in raising the level of public health. This has largely been the result of years of public training by private doctors. Most mothers of today expect immunization against smallpox, diphtheria, pertussis, and tetanus in their child's routine care. Unfortunately some still do not. A few cases of tetanus still cause illness and death in our area. We should see to it that all patients, adults as well as children, are immunized against it.

Annual physical examination is another key facet of preventive medicine. It has become established practice in some of the more sophisticated patient populations and has proved its value in early detection of diseases such as malignant tumors of the breast and cervix. This needs to become a part of every adult's preventive medicine program. If many patients are failing to have it done because their insurance plan does not cover it, then it is time to change the insurance plan or to lower the fee for the examination so its cost need not be a real deterrent.

In the list of specific diseases largely controlled by community health efforts tuberculosis ranks

*Opinions expressed in contributions to the Editorial Section are those of the writers and do not necessarily reflect the views of the Medical Society of the District of Columbia*

high. Such advances have been made that we are apt to think it has been nearly eliminated as a serious public health problem. Drug therapy has shortened disability time and has allowed many patients to be treated at home. But there are still too many active cases undiscovered in the District of Columbia. We must find these cases and treat them. In adults the inclusion of chest X-ray films in the annual examination is part of the ideal case-finding technique. There is a mobile unit available, so fees need be no excuse for failure to have it done. In infants and preschool children skin tests should be done. Again, these are primarily our jobs.

Next, we consider venereal disease. Its true incidence is not known, but it does appear to be rising. Here, again, case-finding is the greatest problem in its control. We must look for it in all new patients. We must learn to recognize it in somewhat unusual sites and forms because of its increasing incidence in homosexuals. Once discovered, it must be reported so all the contacts may be found and treated. The Health Department has well-trained, discreet investigators who can follow the trail of its spread, but we must provide the initial lead by supplying the patient's name.

Control of venereal disease brings to mind another aspect of community health—teaching. Who teaches the school children about venereal disease? Who teaches them about health and hygiene? Who teaches them about sex? In many instances the answers to all are "No one." In only rare cases is the answer "Well-trained persons who understand the problems and can put their knowledge across to youngsters."

We should concern ourselves deeply with this problem of educating young people. They should not be given wrong information or half-information. Their beliefs, some of which are bizarre superstitions, must be replaced by truth. It is our duty to the community to be sure that the teachers are well qualified. We can only do this if we ourselves take part in their training. Armed with such assurance, we can allay the anxiety of parents who may resist such teaching in the schools.

An unusual problem in public health is presented by smoking. Its hazards have been so much discussed in recent months that many of us are tired of the subject. But as long as we see young people beginning to smoke we know that there is more to be said and that it must be said more forcefully. Our greatest contribution will be by example, and here lies the unusual aspect. Too many of us smoke. If our injunctions against it are to be heeded, we too should give it up.

There are other areas of community health in which the individual physician can do little to help. He can, though, give his active support to the actions of the Medical Society. This will add weight to the Health Department's constant struggle to secure adequate funds and to initiate appropriate legislation. Air pollution, preventable accidents, and inadequate prenatal care are a few of these problems.

Everyone bears some responsibility in insuring the public's health. Ours is heavy. We must assist the Health Department to carry out its part of this task, recognizing that its limits are prescribed by law and circumscribed by appropriations. At the same time we must act individually and through our medical societies to bring preventive medicine to all our patients.

Robert R. Montgomery, M.D.

## Best Wishes, Mr. Jackson

On July 1, 1964, Mr. Alfred J. Jackson retired as President and Treasurer of the State Medical Journal Advertising Bureau which he has headed since the Coöperative Medical Advertising Bureau was reorganized in December 1945. When the Bureau was formally separated from the American Medical Association in December, 1955, Mr. Jackson was elected President of the new corporation, which has its offices in Chicago. Mr. Jackson's association with the AMA goes back even farther, however, to 1907; thus to the field of scientific medicine he has devoted his entire business career.

Few readers are aware of the great contribution Mr. Jackson has made to the Medical Annals and to other state medical journals. It has been through his diligent efforts and persuasiveness in securing national advertising contracts that they have flourished through the years. The Editorial Board, on behalf of the membership of the D. C. Medical Society, expresses its gratitude to Mr. Jackson for the services he has rendered, of which the Annals has shared generously, and wishes him health and happiness through many years of less strenuous activities.

## Coronary Care Units

In this country, at this time, coronary artery disease kills 1 adult every minute of every day of the year. The appalling toll exceeds 528,000 annually. In World War I casualties cost America 126,000 men of military age. We now lose 150,000 men under the age of 65 each year to coronary atherosclerosis. This is the sinister impact of a disease that produces an estimated 1,500,000 acute myocardial infarctions annually with a general mortality rate of about 30 per cent.

It is not the intention here to review the general management of acute myocardial infarction but rather to focus on those characteristics which suggest that modern optimal care can significantly reduce the mortality rate. The principal modes of death are cardiogenic shock, congestive failure, and arrhythmia. These modes are not necessarily mutually exclusive, since it is well known that arrhythmias can underlie, precipitate, or aggravate congestive failure and cardiogenic shock. Yet each "complication" can exist alone or in combination. Although the data concerning the relative occurrence of these 3 modes of death are not as precise as we would like, arrhythmias directly or indirectly cause death in from 30 to 40 per cent of all acute deaths occurring in the hospitals.

That the application of intensive medical care can reduce mortality in most emergencies is almost axiomatic. Certainly it is admitted that, despite active research in the treatment of advanced congestive failure and cardiogenic shock, we are still faced with a significant mortality from these causes in the best of circumstances. But in the field of cardiac arrest* and arrhythmias there is a tremendous lifesaving potential if all modern means for early detection and intervention are brought to bear.

Arrhythmias occur in myocardial infarction of any degree of severity. It is most important to recognize that cardiac arrest and potentially lethal arrhythmias occur at least as frequently in the so-called "mild" case as in the severe case and, perhaps, more often. These deaths are particularly distressing because the myocardial damage is not great, and the immediate cause of the fatality often acts only transiently. If successfully interrupted, satisfactory cardiac function can resume. Early attention was called to the impact of arrhythmias on the acute mortality by Master, Dock and Jaffe[1] (1937). In their study of 300 cases patients exhibiting arrhythmias (excluding frequent ectopic beats) had a mortality of 39 per cent compared with 22 per cent for those exhibiting normal sinus rhythm. More recent studies are even more germane in that they demonstrate that rhythm disturbances which are directly lethal (ventricular fibrillation or asystole) or may lead to lethal conditions (ventricular flutter, ventricular tachycardia, and other rapid ectopic rhythms) occur at a significantly high rate among patients whose myocardium is otherwise capable of sustaining circulation.

The therapy of arrhythmias is our strongest weapon today against the onslaught of acute myocardial infarction. Proper application of closed-chest cardiorespiratory resuscitation, external electrical defibrillation and countershock, electrical pacemakers, and drug therapy is effective. But proper application means prompt and immediate therapeutic action when the emergency arises.

Another characteristic of the deaths which follow acute episodes that is worthy of our attention is the time of occurrence of death. The highest mortality occurs in the first 24 hours; over 50 per cent die in the first 72 hours; 75 per cent in the first 5 days; about 85 per cent during the first 10 days.

These broad considerations of the problems of acute myocardial infarction and the capabilities of modern care force the conclusion that acute mortality can be further reduced. It is evident that every acute myocardial patient needs a complete program of medical and nursing care, which must include the means for prompt recognition and treatment of cardiac arrest and significant arrhythmias. Seemingly these services can be provided best by creating a specialized intensive care area, the Coronary Care Unit.

An ideal Coronary Care Unit is conceived as a separate area within the hospital specifically staffed, designed, and equipped to meet all the anticipated needs of acute infarction patients. Such a unit can provide constant and intensive patient surveillance so that emergency treatment can be applied effectively with minimal delay. Although specially designed for the needs of acute coronary cases, its facilities have application to other manifestations of cardiac disease.

At this early stage of experience it is not possible to define precisely all the requirements for an ideal Coronary Care Unit, but by considering the particular needs of these patients the services required can be defined and lead to a characterization of the Unit in regard to physical design, personnel, and equipment. These are matters which may best be resolved by a Coronary Care Committee of each hospital.

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* Cardiac arrest is used here and elsewhere to include ventricular fibrillation or ventricular asystole, and indicates absence of an effective heart beat.

With respect to physical location, we must consider the need for rapid admission to the Unit from the receiving area plus the desirability of ready access to those areas from which resuscitative personnel may be drawn, e.g., anesthesiology, "Heart" station, and cardiology unit. With respect to the design of the Unit, consideration must be given to the needs of these patients for a quiet, tranquil environment combined with close nursing surveillance. Because resuscitative and supportive capability is paramount, adequate uncluttered space around each bed is of great importance. An estimated 132 square feet of available space per patient cubicle is needed. Further, because monitoring equipment supplements but does not replace nursing vigilance, provision for direct visual observation of each bed from a central point seems advisable. How large should the Unit be? It should be large enough to accommodate primarily all patients with an established or suspected diagnosis of acute myocardial infarction during the early stages of their illness. The length of stay is obviously a factor in determining the necessary size of the Unit. The greatest need for intensive care is the first 5 to 7 days if our limited experience to date can be used as a guide. At 100 per cent utilization a 5-bed Unit can accommodate about 360 patients per year for 5 days each.

One approach to meeting these needs is a plan utilizing a rectangular area about 48 by 24 feet. Within this space 5 modules approximately 11 by 12 feet can be arranged in a manner so that each bed is directly visible from a central nursing station. Adequate space is also provided for necessary equipment and storage.

Certainly there are many modifications and a variety of designs that can meet the needs of a particular hospital.

The most important element for the success of a Unit depends upon the people who work in the Unit. No degree of excellence of physical design or sophistication of equipment can supplant the need for a well-trained, competent staff. In addition to competence in basic cardiac nursing, nurses should have specialized training in cardiorespiratory resuscitation techniques, particularly closed-chest cardiac compression. Thorough familiarity with the operations (and limitations) of the cardiac monitoring equipment and with electrocardiographic images will be a necessity. In short, though a new dimension of observation has been added, it will not be effective unless intelligently directed. Although the Unit has a separate nursing staff, "back-up" nursing personnel for resuscitative and other supportive needs must be planned for.

Competent physician coverage should be immediately available at all times. A room adjacent to the Unit for use as a combined physician consultation and sleeping space is an essential adjunct to the Unit.

The central theme of instrumental cardiac monitoring today is the transmission of the electrocardiographic signal from the patient. Although the ECG reflects only a portion of significant cardiac events, it is obviously very useful in the early detection of physiologic changes. The ECG image is sent to an oscilloscope located at the central console at the nurse's desk and, if desired, over or at the patient's bedside. There is merit to this dual presentation, particularly that at the bedside because of need to visualize the ECG and its alteration during critical episodes. The alarm is activated when the pulse rate violates preset high or low limits, or, in some types of equipment, when the QRS duration increases. Audio-visual signals are activated with each QRS signal and can be modulated as desired. Space does not permit more than mention of other features and modifications currently available. Among these are: circuits permitting automatic write-out of the ECG in alarm situations, "memory" tape loops for recording the pre-alarm ECG, pulse-wave monitors which also signal rate and sound alarm when the pulse amplitude diminishes, and external cardiac pacemaking electrodes which can be placed for automatic or manual activation when ventricular standstill occurs.

As instrumentation continues to develop, improvements are being made to reduce the problems of malfunction, undifferentiated alarms due to skeletal muscle potential or loose electrodes, and to provide better means of maintaining long-term electrode contact.

Though the various refinements of ECG monitoring are quite useful, particularly in studies of arrhythmias, it should be emphasized that the basic needs for providing ECG surveillance are quite simple. When cost is a factor (and when isn't it?) a careful survey of the minimal requirements may make the difference between a workable plan and an unattainable goal.

Since one of the functions of the Coronary Care

Unit is successful cardiac resuscitation, all necessary equipment for electrical defibrillation, pacemaking, ventilation, and drug therapy should be maintained in readiness at all times. The immediate availability of effective resuscitative and supportive measures is essential.

A future generation of medical electronic instrumentation may well provide the means of monitoring parameters more sensitive to early cardiovascular changes than the electrocardiograph and thereby alert us to changes much earlier. Among these is a challenging need for sensors of heart function that would allow a better mechanical and metabolic performance. However, it is imperative that we capitalize fully on "hardware" currently available. It would be difficult to predict the precise reduction of mortality that would result if the services described above became available to all patients with acute myocardial infarction. There is little doubt, however, that many lives can be saved.

Combining the early results from 2 hospitals with Coronary Care Units it is most encouraging to find that, in a total of 36 months of experience, representing 229 acute myocardial patients, 7 patients with ventricular fibrillation and 11 with ventricular standstill have been resuscitated. During the same period ventricular tachycardia developed in 25 patients and was successfully treated in all without a fatality.[2, 3]

Other reports that indicate the potential from this advance in therapy are noted in the selected reading list which follows.[4-10] These are worthy of review as we struggle to bring to bear every possible medium of our armamentarium against the greatest killer of our time.

CLARENCE A. IMBODEN, JR., M.D.
*Chief, Coronary Section, Heart Disease Control Program, Division of Chronic Diseases, U. S. Public Health Service, Department of Health, Education, and Welfare*

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## A Final Note on the Mass Poliomyelitis Immunization Program

MY THANKS to all of you who helped us in the Polio Program. Despite the problems, and sometimes confusion, the project was most worthwhile. Although everyone was not immunized, most of us are satisfied with the results. Here they are:

**Portion of Population Immunized in the District of Columbia***

| Age Groups | Type I Per cent | Type III Per cent | Type II Per cent |
|---|---|---|---|
| Under 5 years | 46 | 47 | 46 |
| 5–13 years | 75 | 79 | 77 |
| 14–19 years | 87 | 77 | 75 |
| 20–30 years | 51 | 55 | 48 |
| 31 and over | 35 | 35 | 30 |
| TOTAL ALL AGES | 49 | 49 | 45 |

* An additional 10 per cent should be added for previously Sabin-immunized individuals.

Special mention should be made of the sites (feeding stations) handling the heaviest loads for the 3 Sundays. They were: Paul Junior High and Hart Junior High, averaging over 13,000; Washington Hospital Center and Carter Barron Amphitheater, averaging over 11,000; Backus, Deal, Hine, MacFarland, Kramer and Sousa Junior High Schools, averaging over 10,000, and Sibley Memorial Hospital, also over 10,000.

With few exceptions all the feeding stations were well attended, and credit is due those responsible for the facilities offered. In addition to the above, the junior high schools which participated were: Banneker, Browne, Douglass, Eliot, Evans, Francis, Garnet-Patterson, Gordon, Jefferson, Langley, Kelly-Miller, Shaw, Stuart, Taft, Terrell and Woodson. There was also good attendance at Georgetown University, Providence, Casualty, Columbia and D. C. General Hospitals.

D. C. Stadium registered a sizable number of baseball fans and the Mobile Bus proved popular. The stations at the following places were kept busy too: Howard University College of Medicine, St. John's College High School, Washington Clinic, National Airport, D. C. Medical Society, First Baptist Church of Deanwood, Barney Neighborhood House, Arthur Capper Dwelling, and the Hendley, Adams, Takoma Park, and Ruth K. Webb Elementary Schools.

Special mention should also be made of the long hours put into the program by Mr. George Cooley, the Medical Society staff, and Mr. James J. Forsythe of Pfizer Laboratories. They bore the brunt of the entire project—and without complaint.

My thanks and that of the Committee and the Medical Society for a job well done. The complications of such a program are well shown by the number of volunteers who gave of their time to man the sites in D. C.: 315 physicians, 143 dentists, 133 pharmacists, 116 nurses, and some 2,500 lay people from all walks of life. To each person who made a contribution we have sent a "Certificate of Appreciation," not that this compensates for their time and work, but it is, we hope, an acknowledgment of our and the community's appreciation for their efforts.

Marvin C. Korengold, M.D.
*Chairman, Committee on Poliomyelitis*

## Operation Polio Drive-in*

Assuming there have been many reports on the Sabin oral polio vaccine immunization program, I am limiting my report to a description of one of the immunization stations in the District of Columbia which was manned by 30 volunteers of the Auxiliary and was run as a drive-in, the only one of its kind in our area.

On Sunday, May 17, in a parking area in Rock Creek Park we set up 2 large tents on opposite sides of the lot. As the cars entered they were directed into 4 lanes. Registration forms were handed out and then collected farther down the line as the cars kept moving up to the point where the vaccine on a sugar cube was given from a tray. "Donations at the end of the line," we would say, and one of our members was there to collect 25 cents per person, or whatever was offered. Inside the tents members tabulated the registration forms, helped set up the trays for the vaccine, and served coffee.

As cars came through there were photographers taking movies for local television and also for the U. S. Information Agency, which plans to show them overseas. An amusing incident occurred when a limousine drove in with a chauffeur. When we offered him the vaccine he said, "It's for Madame," pointing toward the back seat. A boy went through on a bicycle, another on a motorcycle. Some came in taxis and the driver took it too. Even the policemen in the area came through in their patrol cars. Everyone was happy to find the procedure so simple. When a sudden thunderstorm hit us, the people stayed dry in their cars; not so, however, the volunteers, who waded through rivers of water to hand out soggy registration forms. When the sun came out, there had been no let-up in the steady stream of cars. From 11:00 in the morning until 7:00 that night, a total of about 13,000 persons were taken care of at our Polio Drive-in.

Mrs. Jonathan M. Williams
*President, The Woman's Auxiliary to the Medical Society of the District Columbia*

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* Presented to the Woman's Auxiliary to the American Medical Association, June 23, 1964, during its Annual Meeting in San Francisco.

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## The Polio Story

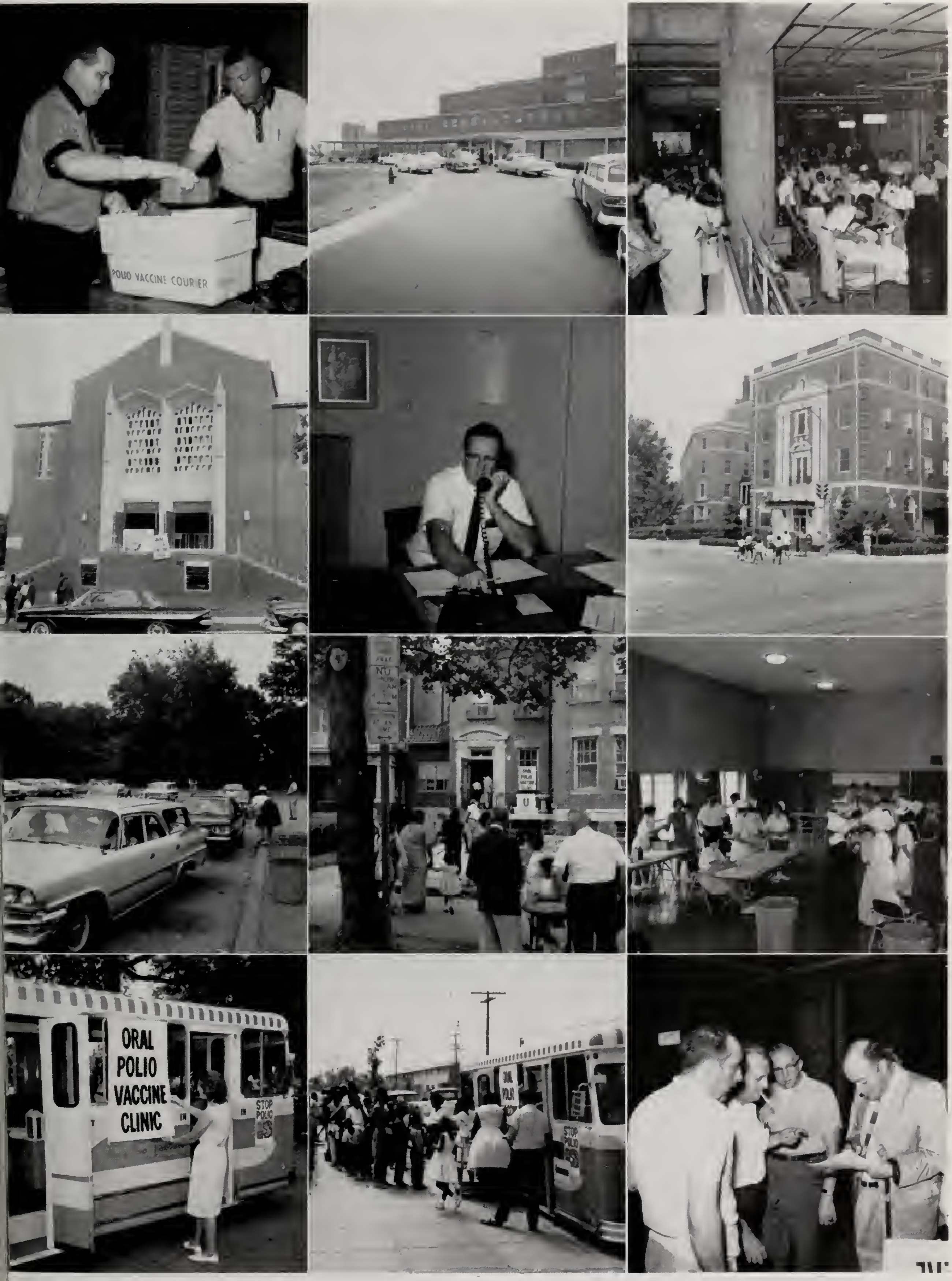
The photographs on pages 446 and 447 are reproduced to give our readers a pictorial presentation of how the Mass Polio Immunization Program was accomplished. The Control Center for the entire project was at the Medical Society headquarters, where Dr. Marvin C. Korengold (center, page 446), Chairman of the Committee on Poliomyelitis, kept in constant touch with the doctors, pharmacists, and nurses who manned the feeding stations, as well as the small army of lay volunteers who assisted in numerous ways.

Beginning at the top of the left page and continuing down (left to right) the story develops somewhat as follows: The vaccine and other supplies were brought from the warehouse to the feeding stations. At the stations nurses and lay helpers deposited sugar cubes in paper cups, which were stacked on trays in readiness for the pharmacist. He added the vaccine with a medicine dropper.

To the right of Dr. Korengold is the Control Board where the total number of vials of vaccine used per hour were tallied. Here too the information calls were handled.

(*Continued on page 448*)

**THE POLIO STORY (see legend on page 445)**



THE POLIO STORY (see legend on page 445)

# Dr. Ward to Head AMA in 1965

Dr. Donovan F. Ward, of Dubuque, Iowa, was named President-elect of the American Medical Association at its Annual Convention in San Francisco, June 21–25. An alumnus of the University of Iowa, he has spent all his professional life in Dubuque, with the exception of his service in the Navy during World War II. He has served the past year as Vice President of the AMA.

Dr. Norman A. Welch, of Boston, was installed as the 118th President of the AMA at inaugural ceremonies, June 23.

The Distinguished Service Award went to Dr. Irvine H. Page of the Cleveland Clinic, Cleveland, Ohio. He is widely known for his investigations in the fields of cardiac, renal and vascular diseases.

Prof. Rene Jules Dubos, Ph.D., of the Rockefeller Institute, New York City, was presented the 1964 Scientific Achievement Award. Dr. Dubos' contributions to medical science include development of a rapid method for growing tubercule bacilli in submerged cultures; inquiries into the mechanisms of acquired immunity and resistance to infection, with special stress on tuberculosis; and the discovery of the antibiotic tyrothricin. The Award, a gold medal, was established in 1960 to honor non-physician scientists who have done outstanding work.

The Passano Award for 1964 was presented to Keith R. Porter, Ph.D., Professor of Biology at Harvard University, and Dr. George E. Palade, of the Rockefeller Institute for Medical Research, June 22, at a reception and dinner at the Mark Hopkins Hotel. The two men will share the $5,000 award jointly in recognition of their original work in developing the use of the electron microscope in cytological research and the subsequent importance of their work in the field of genetics.

Members of the District of Columbia Medical Society received recognition in the Scientific Exhibit. The Hektoen Silver Medal was awarded to Dr. Giorgio Baroldi, of the University of Milano, Italy, and to Dr. William C. Manion, of the Armed Forces Institute of Pathology. The exhibit was entitled "The Circulation in Normal and Pathological Heart." Dr. Manion is an Associate member of the D. C. Medical Society.

A Certificate of Merit was awarded to Drs. Linwood L. Rayford, Jr., Marion Mann, Richard L. Whelton, and Jorge B. Morales, of Howard University College of Medicine and the D. C. Coroner's Office, for their exhibit on "The Battered Child." Honorable Mention went to Drs. James M. Moss, DeWitt E. DeLawter, and Carleton P. Alexis, of Georgetown University Medical Center, for their exhibit on "Oral Therapy in Diabetic Management." These exhibits appeared in the Section on General Practice.

The Woman's Auxiliary to the American Medical Association made a contribution to the AMA's Education and Research Foundation of $306,318.14. Since the inception of AMA-ERF, the Auxiliary has contributed $1,827,087.20.

The attendance at this Convention reached 49,437, with a total registration of physicians of 14,229. The next Clinical Meeting will be in Miami Beach, Florida, November 29–December 2. New York City will be host to the 1965 Convention, June 20–24.

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The Polio Story (*Continued from page 445*)

As supplies were reported low the couriers were on hand to replenish them quickly by radio-car service.

The D. C. Medical Society building was one of the feeding stations, and during the busiest hours registration was carried on outside as well as inside the building. Infants received their vaccine from a doctor or Public Health nurse directly into the mouth from a medicine dropper. Children and adults took the paper cups and swallowed the cube as instructed. As they left, a voluntary contribution of 25 cents per person was placed in a container. These quarters soon became heavy sacks; Dr. Edward W. Nicklas (lower right), the Medical Society's President, used both hands to "bring in the money."

At the center of the right hand page is Mr. James J. Forsythe, who was in charge of the supply of vaccine for Pfizer Laboratories. His Control Room was also in the Medical Society's building.

Beginning at the top, left to right: The couriers distributed supplies to 46 feeding stations throughout the District of Columbia on the 3 Polio Sundays, April 19, May 17 and June 14 and the makeup day on each Saturday following.

The Washington Hospital Center (top, center) was lined with cars on the outside and filled with people inside. To the left of Mr. Forsythe is the First Baptist Church of Deanwood, and to the right, Casualty Hospital.

A steady stream of cars kept moving through the Carter Barron grounds, where the Woman's Auxiliary members handed the visitors registration forms, dispensed the vaccine from paper cups, and collected the donations, all without the occupants getting out of their cars. The Nurses Home at Providence Hospital was also a busy place, outside and in.

At the bottom of the page is the D. C. Transit Company's Minibus which moved from place to place and proved very popular, as can be seen. There was even a station at the D. C. Stadium (lower right hand corner) to accommodate the baseball fans, and Dr. Robert H. Parrott (right), of Children's Hospital, noted that the response even there was excellent. Dr. Parrott gave invaluable service to the Committee in the role of scientific consultant.

# Report of Delegates to the AMA House of Delegates

**San Francisco, California, June 21–25, 1964**

Your delegates spent a very active time at this Annual Meeting, representing the Medical Society of the District of Columbia during sometimes hectic sessions of the House of Delegates and its reference committees. Dr. Raymond T. Holden was unable to attend due to business reasons and his place was taken by Dr. Clifton R. Gruver, his alternate.

The resolution introduced by your delegates at the direction of the Society, entitled "Right of a Physician to Dispose of His Income," was not approved by the Reference Committee concerned, but the purpose of our resolution was amply accomplished by the passage of a substitute motion put before the full House of Delegates which stated that "Each physician shall be the sole arbiter of the ways in which he shall dispose of his professional income, consistent with the laws of the land and the Principles of Ethics [of the AMA]."

Other actions of the House of Delegates covered the following points:

1. Cigarette smoking was labeled as a serious health hazard with recognition that there exists a significant relationship between cigarette smoking and the incidence of lung cancer and certain other diseases. Increased educational activity for all age groups on this subject was recommended with updating on the distributed educational material. The House also stated that great pride should be taken in the research program on tobacco and health being carried out by the AMA Education and Research Foundation. This program is being financed by grants from the tobacco industry at the rate of $2,000,000 a year for a 5-year period.
2. The House of Delegates declared itself unalterably opposed to discrimination in local and state medical associations based on race, color, religious affiliation, or national origin, and called for all component societies and individuals to work toward an end to discrimination in the medical field.
3. A most comprehensive 4-volume report was returned by the Commission on the Cost of Medical Care of the AMA, which had spent 3½ years on this project. As a report on the use of the health dollar and disease it is a very worthy study.
4. Approved a Section on Allergy but recommended no Section for Space Medicine.
5. Rejected a proposal which would have polled all self-employed physicians as to their wishes on Social Security coverage for themselves.
6. Numerous other proposals regarding the internal functioning of the House and/or its Committees or Councils were remanded for further study and later report.
7. Called for a study by the Board of Trustees, to report later, on the advisability and cost of establishing a teletype or similar immediate system of communication between AMA headquarters and state and large county societies for the rapid dissemination of information.
8. Called for the use in the future of Dr. Edward Annis as a spokesman for medicine with appropriate remuneration as determined by the Board of Trustees.
9. Delayed for study and report in November 1964 of a proposal to increase the dues of the AMA from the present $45.00 annually to $65.00 in 1965, $85.00 in 1966, and $100.00 in 1967.

It is recommended by your delegates that an expression of the will of this Society be obtained prior to the Clinical Meeting, November 29–December 2, 1964 as regards 2 items in this report. They are: (a) advisability of establishment of a rapid communications system as mentioned in no. 7; and (b) proposed increase in annual AMA dues as outlined in no. 9 above. To supplement this it would be advisable to have available for Society consideration the latest financial statement of the AMA.

Your delegates appreciate their opportunity to serve as representatives of the Medical Society of the District of Columbia.

Respectfully submitted,

C. Willard Camalier, Jr., M.D., *Delegate*
Clifton R. Gruver, M.D., *Alternate Delegate*

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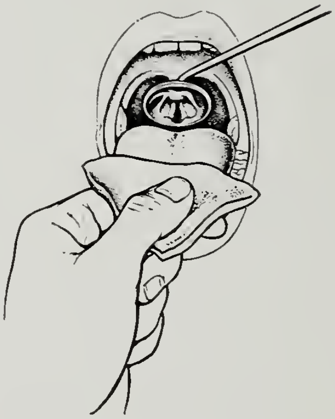

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# University of Pennsylvania School of Medicine: Its 200th Year

COLONEL JOHN BOYD COATES, JR., M.C., U.S.A.

*Director, The Historical Unit, United States Army Medical Service; Editor-in-Chief, United States Army Medical Department in World War II*

THE INSTITUTION that is now the University of Pennsylvania School of Medicine was founded in 1765, but its roots go considerably farther back, to 2 much earlier events:

The University of Pennsylvania (which did not assume that name until 1791) was founded in 1751, largely by the efforts of Benjamin Franklin, as an academy for the higher education of the youth of the colony. It received its charter as the College of Philadelphia in 1755.

In "the year of Christ" 1755 the institution that is now the Hospital of the University of Pennsylvania was "piously founded for the relief of the sick and miserable," with the prayer that "the God of Mercies" would "bless the undertaking."

The implications of these 2 events, the founding of the University and of the Hospital, are clear: When the University of Pennsylvania School of Medicine was founded in 1765, it was attached to a potential university, and it had immediately at hand a teaching hospital for its students. How greatly that hospital has been blessed would be attested to by the thousands of students and graduates of the School who have worked in it across the years, and even more by the thousands upon thousands of "sick and miserable" who have been cared for under its roof.

When William Penn, in 1682, founded the colony that became the Commonwealth of Pennsylvania, he brought a doctor of medicine with him, and other physicians came over during the ensuing months. They cared for the sick, and, perhaps more important, they served as preceptors for the younger, native-born medical men, many of whom later studied in London, Leyden, and, most often, in Edinburgh.

In 1760 a young medical student by the name of John Morgan began to follow this plan, studying at Edinburgh, from which he received his medical degree in 1763 after he had attended William Hunter's lectures in London and before he went on to further work in Paris, Holland and Italy. While in Edinburgh he discussed his plan for formal education in the colony with another student from Philadelphia, William Shippen. When the latter returned to Philadelphia in 1762 he announced that he would offer anatomic lectures at his father's house—actually, his dissections were carried out in a building in his father's back yard—and to him can be attributed the acceptance of this practical mode of teaching anatomy as an essential in American medical education.

When Dr. Morgan returned to Philadelphia in 1765 he presented his plans for a school of medicine at a special meeting, May 3, 1765, of the Trustees of the College and Academy of Philadelphia. The Trustees approved his proposal and at once appointed him Professor of the Theory and Practice of Physic, an appointment that made him the first professor of medicine in the first medical school on the American Continent.

On September 26, 1765 the public was informed in the *Pennsylvania Gazette* that "a Course of Lectures on two of the most important branches of that useful science (Medical Knowledge), viz., Anatomy and Materia Medica, will be delivered this winter in Philadelphia." In order to render these courses "the more extensively useful" there would be introduced into them "as much of the Theory and Practice of Physic, of Pharmacy, Chemistry and Surgery as can be conveniently admitted." From these courses, "together with an attendance on the practice of the physicians and surgeons of the Pennsylvania Hospital, the students will be able to prosecute their studies with such advantage as will qualify them to practice thereafter with more satisfaction to themselves and benefit to the community."

Meantime, just before this notice appeared, William Shippen had been appointed Professor of Anatomy and Surgery in the new medical school, and he and John Morgan constituted its entire faculty until January 1768, when Adam Kuhn was made Professor of Botany and Materia Medica, and, a little later, Benjamin Rush, who was to be one of the signers of the Declaration of Independence, was appointed Professor of Chemistry. All 4 professors were under 30 years of age. All 4 were Edinburgh-

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trained, and many of the traditions of that venerable school became part of the traditions —and so remain to this day—of the University of Pennsylvania School of Medicine.

As the result of the notice in the *Pennsylvania Gazette* a class of medical students was at once enrolled in the embryo medical school, and 10 of them were graduated in 1768 with the degree of Bachelor of Physic, the first medical school in the Colonies thus awarding the first medical degrees in them. King's College of Columbia University awarded the M.D. degree in 1770, and that degree, instead of the baccalaureate degree, was awarded by the University of Pennsylvania School of Medicine after 1789.

By this time (1789), as the result of difficulties during the Revolution and thereafter, the original medical school had become 2 competing schools, with a somewhat interlocking faculty. These difficulties were finally resolved, however, and Benjamin Rush proclaimed, in his inaugural lecture at the combined school in September 1791, that the "ancient harmony" of the different professors of medicine had been restored and that their united efforts would be devoted, "with accumulated force," toward the advancement of medical science.

It is interesting to look back across the 200 years of its existence to the early aims of the University of Pennsylvania and to see how adequately they have been achieved. When Dr. Morgan delivered his inaugural oration in May 1765, shortly after he had been authorized to proceed with his plans for the school, he entitled it, "A Discourse upon the Institution of Medical Schools in America." Two centuries later much of what he said could be profitably borne in mind by the administrators and faculties of all present-day medical schools. He dwelt upon standards of admission; the presentation of academic courses by qualified physicians; a planned curriculum with well-defined courses of instruction; the completion of basic scientific studies before clinical training was undertaken; and high standards for graduation.

Dr. Morgan also emphasized the importance of close ties with a teaching hospital, and in all the 200 years of its existence the School of Medicine has never departed from its original plan of clinical teaching at the bedside and in the amphitheater. The institution that is now the Hospital of the University of Pennsylvania was, as already noted, conveniently at hand when the School was founded. So was the institution that is now Philadelphia General Hospital, which had been established in 1731 as a workhouse to "imploy poor P'sons," with "sufficient P'sons appointed to keep them at work." Although this institution did not begin as a hospital it was the first institution on the Continent devoted to the care of the sick and needy. It provided the first obstetric clinic in America for students (of good character), though it was Shippen, a distinguished obstetrician along with his other qualifications, who really made that branch of medicine respectable. A separate chair of midwifery was set up in the School in 1810, and 3 years later attendance on departmental lectures was made obligatory for a degree.

Even after the School of Medicine was established the preceptor continued to be considered essential in medical education, as he still is. Today, third-year medical students at the University of Pennsylvania School of Medicine are offered a summer elective under the preceptorship of selected practicing physicians. It would be hard to think of a sounder introduction to the practice of medicine.

The first faculty at the School were all distinguished physicians. Through the years the faculty has continued to consist of physicians of the same high level. To mention only a few —for to mention all of them would be impossible—Caspar Wistar was one of the most eminent anatomists of all time, as the Institute which bears his name attests. In Philadelphia President Washington's family physician was William Shippen. Graduates of the School served as the Surgeons General of both the Union and Confederate Armies. Dr. I. S. Ravdin served as consultant to Lieutenant General Leonard D. Heaton, the present Surgeon General of the Army, in the weighty decisions that he had to make in connection with President Eisenhower's operation for intestinal obstruction arising from regional enteritis. There are others—Dr. Alfred Stengel; the Pepper brothers, William and O. H. Perry; the Mussers, father and son; Dr. Alfred N. Richards; Dr. Henry Cuthbert Bazett; Dr. Charles Harrison Frazier; Dr. Donald M. Pillsbury, who by his pioneering work in related basic research has made the Department of Dermatology one of the foremost in the world; and Dr. Eugene Pendergrass, who recently retired as Chairman of the Department of Radiology and who has done much the same for radiology. Dr. Pendergrass not only does the impossible, as one of his admiring former stu-

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dents wrote of him, but he does it "with the greatest of ease."

In his inaugural discourse Morgan expressed the hope that the new medical school might "collect . . . young persons of more than ordinary abilities," and, by sending them abroad, might "give birth to other useful institutions of a similar nature," or to "numerous societies of different kinds, calculated to spread the light of knowledge through the whole American Continent, wherever inhabited." This is another wish that has been amply fulfilled. By 1809 one of the founders of the Charleston Medical College (now the Medical College of the State of South Carolina), himself a Penn graduate, wrote that "the growing reputation of the University of Pennsylvania resulting from the splendid talents of its professors and the solid achievement of its graduates" had done away with the impression that an adequate medical education could be secured only in Europe. Graduates of the University of Pennsylvania School of Medicine have played a part, it is estimated, in the founding of some 29 other medical schools, and it is doubtful that there is a medical faculty in the country on which they are not represented.

With the beginning of the 1964–1965 academic year, the University of Pennsylvania School of Medicine will begin the celebration of its 200th year. Since its founding in 1765 it has graduated more than 20,000 physicians, who have spread its name and fame all over the world. It now has a complex of buildings and facilities equal to —perhaps unequaled by—those of any other medical school in the world. It has more than 2,600 clinical beds available for teaching in 2 University hospitals and 4 formally affiliated hospitals and teaching privileges in other institutions with 500 beds. It has a faculty of unparalleled excellence. It now has 15 endowed professorships. In 1910 it founded the first Department of Research Medicine in the country, and this year its research grants ran to more than 9 million dollars. Moreover, some 85 per cent of the students who graduate today have undertaken research projects during their undergraduate years.

In this, its anniversary year, some 50 medical and related national and international organizations will meet in Philadelphia in honor of the School. One of them, significantly, is the Association of American Medical Colleges.

It has been said that the sum total of scientific knowledge doubles approximately every 8 years. If that is so, it is extremely important that graduates of the University of Pennsylvania fulfill what *Time* recently called the best test of a college, that its alumni shall continue to have a relish for learning. Pennsylvania's medical graduates have that relish. To the Medical School, as well as to the Graduate School of Medicine which was organized in 1916, alumni and graduate students constantly return for seminars and special courses, or even—and perhaps most profitably—just to follow their favorite professors around the wards for a day or two.

The Dean of the School of Medicine, Samuel Gurin, has fully recognized the dangers as well as the advantages inherent in the present scientific situation. What he terms the School's "critical mass of scholars" is both "laboratory- and patient-oriented." It is necessary, he wrote, "to reconcile a sophisticated scientific education with . . . the art and the practice of medicine," for "the best of the biomedical sciences" must be brought "to the bedside without losing sight of the fact that the patient is a human being, and not just a disease. Given students with the right motivation, and a faculty that properly understands its responsibilities, both goals are attainable."

What the Dean of the University of Pennsylvania School of Medicine is saying can be summed up in what was said of one of its early graduates, a certain James Moultrie, who received his degree in 1812, that he had "competency equal to his compassion." There could be no higher goal for the School than to make that equation of competency and compassion true of all its graduates.

# Health Dept. Notes

### Air Pollution and the District

THE MIDYEAR REPORT of the U. S. Public Health Service placed Washington fourth in the Nation among comparable cities in its levels of air pollution. This figure for the first 6 months of 1964 is interpretive rather than absolute, but even after adjustment the District still has far too much air pollution.

The Department of Public Health is much aware of this, and earlier this year a 10-point program was announced to reduce and control the levels of atmosphere pollution. These 10 points are as follows:

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To study the need for legislation affecting air pollutants and to compile existing codes and regulations;

To review the problem of "open burning" of leaves, trash and other wastes by industry and by householders, some of which is now permitted as a means of disposal;

To review permit procedures which affect the installation of combustion or dust-producing equipment (boilers, heating plants, rock pulverizers, etc.);

To survey and map the location of existing sources of atmosphere pollution;

To expand the District's present system of air-monitoring so that sampling is done at various locations throughout the city on a continuing basis;

To train members of the Public Health inspection staff to recognize air pollutant situations and to handle reports by District residents;

To establish a public-alert system for warning that air contamination is reaching a high enough level for discomfort or danger to health;

To sponsor and conduct research on long-term and short-term effects of air pollution and contamination;

To participate in and coördinate activities concerning air pollution with other Public Health jurisdictions in the Washington Metropolitan Area;

To establish a program of public education and information on all aspects of air pollution, its causes, hazards and methods of control, with all this intended to enlist direct public support.

Planning along these lines has continued since the 10-point program was first announced 8 months ago. District officials have been especially active in the Air Pollution Advisory Board, of which the Health Department representative is chairman. This group coördinates for the 6 political jurisdictions which make up the Greater Washington Area. This Board is seeking $20,000 under the Clean Air Act of 1963 to establish new and to expand existing air pollution plans.

Too many persons equate high levels of air pollution with great industrial activity. They discount the likelihood of Washington reaching a point where the level of pollution will be dangerous to personal health.

They could not be in greater error. In certain weather situations the bowl-like location of Washington permits air to be trapped in layers overhead. Below are thousands of homes, commercial buildings, some industry and thousands of automobiles which pour toxic and irritant substances into the atmosphere. On some days the Washington air pollutions level has peaked higher than anywhere else in the Nation. Even the lower levels which occur each month are at least a nuisance and often a hazard.

It is this total problem which the Department is attacking, as it would any threat to community health.

MURRAY GRANT, M.D., D.P.H.
*D. C. Director of Public Health*

# Letters to the Editor

### Medical Extremism

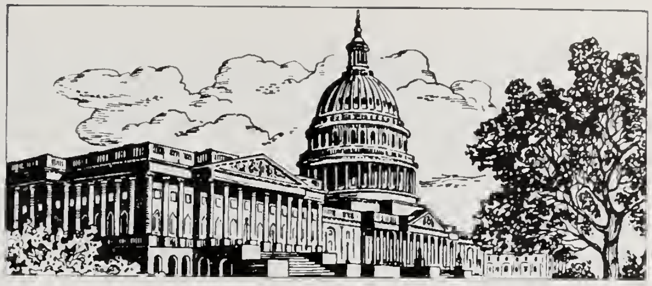
Our postwar population is surfeited, materialistic and unhappy. Routinism is rampant. Overreaction has become the norm.

Degenerative disease, our main health problem, is in large measure due to overweight (malnutrition). Institutions preparing food for the sick have improved very little on the nutritional habits of the 19th century. Postpartum, dry diet and hormones are routinely prescribed, acting to distort normal breast function; much inconsequential writing and strenuous salesmanship support this unnecessary and potentially harmful practice. The puerperium has practically been eliminated, so that family adjustments in this trying period are increasingly becoming family maladjustments. These are but some of the flagrant examples of our postwar 'hysteria.'

Assumed, unearned status is being substituted for initiative. A favored avocation is 'sitting in judgment.' Whither goes judgment, stability and maturity? Is it not time to take inventory of ourselves and consolidate our gains? For there always comes the inevitable reckoning.

As men and women of medicine, we can greatly serve to maintain balance and counteract extremes.

Very truly yours,
BERNARD NOTES, M.D.



# NEWS & PERSONALS

## Summary of Executive Board Actions

**The Executive Board of the Medical Society of the District of Columbia** held its regular monthly meeting, June 29, in the Society's building. Dr. Victor R. Alfaro, Chairman, presided. Present were Drs. C. Willard Camalier, Jr., Karl C. Corley, J. Spencer Dryden, Harold M. Hobart, Raymond T. Holden, Edward W. Nicklas, Josephine E. Renshaw, Duane C. Richtmeyer, Paul R. Wilner, and Mr. George Cooley, Secretary. The Chairman called the meeting to order at 7:30 p.m.

**Committee Meetings:** The Secretary reported the following committee meetings held since the Board's last meeting:

| | | |
|---|---|---|
| May | 26 | Ad Hoc Committee on Smoking and Health |
| | 27 | Liaison Committee with the Clergy |
| | 27 | Committee on Hospital Relations |
| | 28 | Subcommittee on Life Insurance |
| June | 5 | Committee on Cancer Control |
| | 10 | Board of Credentials |
| | 10 | House Committee |
| | 11 | Medical Bureau Committee |
| | 12 | Review Board for Prepaid Medical Care Benefits |
| | 15 | Subcommittee on Medicolegal Problems |
| | 17 | Committee on Aging |
| | 17 | Special Membership Meeting |
| | 22 | Committee on Postgraduate Education |
| | 22 | Committee on Maternal Welfare |
| | 23 | Grievance Committee |
| | 23 | Ad Hoc Committee on Smoking and Health |
| | 24 | Liaison Committee with Federal Agencies |

**Board of Credentials:** The Executive Board approved the following recommendation of the Board of Credentials:

*Active Member*

Robert Andrew Fischer, 2400 H Street, N.W.

**Public Health Service Project:** The Secretary discussed a proposed pilot study to be made by a section of the U. S. Public Health Service. This study involves seeking the answers to certain questions concerning the organization of medical practice in medical arts buildings in the District.

Public Health Service has requested approval in principle of the project, including the need for and the objectives and methods of study; the selection of approximately 9 physicians to serve in an advisory capacity in preparing the questionnaire to be used in the study; and assistance in mailing the completed questionnaire to a select group of physicians.

The Board approved the pilot study in principle; authorized the President to select 9 physicians to help evaluate the questionnaire; and authorized the Secretary to coöperate in selecting physicians to whom the final questionnaire would be mailed and to assist in enlisting their coöperation in completing the questionnaire.

**Subcommittee on Medicolegal Problems:** A proposed "Good Samaritan Law" proposed by this Committee was approved by the Board.

**Special Membership Meeting of June 18:** The Board voted that the Secretary should proceed to determine what organizations might be interested in the rental of space in the proposed new Medical Society building. It also authorized the Secretary, in coöperation with the Chairman of the House Committee, to discuss specific rental proposals and that these proposals be brought to the attention of the Chairman of the Board and the President. It was agreed that the House Committee and the Executive Board should also be informed before any specific contracts are signed.

**AMA Annual Meeting:** Dr. Camalier, Delegate to the AMA, reported on the action taken by the AMA House of Delegates in reference to the resolution submitted by the D. C. Medical Society. While the Society's own resolution was not adopted, a substitute resolution was adopted which for all intents and purposes carries out the objectives of the resolution submitted by the Society. The substitute resolution is as follows:

> "Resolution 56, introduced by the District of Columbia on Right of Physician to Dispose of His Income.' Your reference committee, after carefully considering Resolution 56, believes that current American Medical Association policy permits the physician to dispose of his income as he sees fit.
>
> "It is recommended that this be made abundantly clear in the following words: 'It is the policy of the American Medical Association that each physician shall be the sole arbiter of the ways in which he shall dispose of his professional income, consistent with the laws of the land and the Principles of Ethics of this Association.'
>
> "Mr. Speaker, I move that Resolution 56 not be adopted and that the policy as stated above be affirmed by this House."

Dr. Camalier also reported on several resolutions introduced in the House of Delegates in reference to AMA policy on discrimination. He stated that the following resolution was adopted in lieu of various substitute resolutions submitted:

> "WHEREAS, There is no basis for the denial to any human being of equal rights, privileges and responsibilities commensurate with his or her individual capabilities and ethical character, regardless of race, color, religion, ethnic affiliation, or national origin; *therefore be it*
>
> "*Resolved*, That this House of Delegates of the American Medical Association is unalterably opposed to the denial of membership, privileges and responsibilities in county medical societies and state medical associations to any duly licensed physician because of race, color, religion, ethnic affiliation, or national origin; *and be it further*
>
> "*Resolved*, That this House of Delegates of the American Medical Association call upon all state medical associations, all component societies, and all individual members of the American Medical Association to exert every effort to end every instance in which such equal rights, privileges or responsibilities are denied."

The Executive Board voted to go on record as approving the above statement of the AMA and reaffirming this Society's policy as adopted at the June 15 meeting of the Executive Board.

**Mass Screening Program:** President Nicklas read a letter from Dr. Balfour D. Mattox of the D. C. Dental Society concerning a screening program to be carried out during the Dental Society's Annual Postgraduate Clinic. During the discussion a number of questions were raised: What were the results of the screening program conducted last year? Was the yield worth the money spent? In addition, questions were raised concerning the use of Health Department personnel and Public Health Service funds, i.e., tax funds, for this purpose. After considerable discussion the Board voted not to approve and not to participate in any mass screening program designed for any group having sufficient funds to pay for physical examinations which can be done by their own phycians and that the Medical Society oppose the use of tax funds to subsidize such programs for any of the higher income groups.

The President was authorized to forward a copy of this action to the Dental Society and also to send a letter to Dr. Murray Grant, D. C. Director of Public Health, in reference to the use of tax funds for such purposes.

**AMA Clinical Session:** Dr. Camalier reported that a letter had been sent to Dr. F. J. L. Blasingame, Executive Vice President of the American Medical Association, inviting the AMA to come to Washington for a future Clinical Session. It was agreed that the Washington Convention and Visitors' Bureau be approached for factual material which could be sent to the AMA regarding housing and other facilities available in Washington.

There being no further business, on motion the meeting adjourned.

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# Meetings

**The 71st Annual Meeting of the Association of Military Surgeons of the United States** will convene at the Sheraton-Park Hotel in Washington, October 20–22. The theme of the meeting is "Military Progress Through Scientific Achievement." General Chairman is Brigadier General Joe M. Blumberg, MC, USA, Director of the Armed Forces Institute of Pathology.

Highlight of the opening day will be a symposium on progress in medicine in relation to environmental challenges created by man's exploration of the unknown.

The program this year is particularly timely. It will deal with medical problems caused by the increasing military involvement in the Far East, medical advances resulting from developments in modern weaponry, aircraft accidents, and other topics of like importance.

**The Fourth National Congress on Voluntary Health Insurance and Prepayment,** sponsored by the American Medical Association, will convene at the Flamingo Hotel in Las Vegas, Nevada, October 2–3. Members of the medical profession, Blue Shield, Blue Cross, Health Insurance Council, and representatives of industry, labor, Government, and allied health fields are expected to attend and participate. Preregistration forms may be secured from the AMA Department of Medical Finance and Economic Research, 535 North Dearborn Street, Chicago, Ill. 60610.

**The 114th Annual Session of the Pennsylvania Medical Society** will be held in the Bellevue-Stratford Hotel, Philadelphia, October 13–16. Members of the D. C. Medical Society and their guests are cordially invited to attend this meeting. Physicians will be registered upon presentation of a 1964 AMA membership card. There will be no registration fee for physicians or their wives.

The Annual Oration will be presented by Dr. Warren H. Cole, Professor and Chairman of the Department of Surgery, University of Illinois College of Medicine, on October 16 at 1:30 p.m. His subject will be "Current Trends in Gallbladder Disease."

**The First National Congress on Strokes** will be held at the Palmer House in Chicago, October 29–31. Sponsoring agencies are the American Medical Association, American Heart Association, Heart Disease Control Program of the U. S. Public Health Service, and Vocational Rehabilitation Administration of the Department of Health, Education, and Welfare. The Congress is designed to stimulate a wide-spectrum program of prevention and management of strokes, now the third leading cause of death in the United States, and the rehabilitation of stroke patients.

**The Sixth National Conference on the Medical Aspects of Sports,** sponsored by the American Medical Association, will be held in Miami Beach, Florida, at the Deauville Hotel on November 29 in conjunction with the Clinical Convention of the AMA. Papers, panels, and discussions relating to training and conditioning, prevention and treatment of injuries, physiology of sports participation, and other subjects will constitute the program. Announcements may be secured from the Secretary, Committee on the Medical Aspects of Sports, American Medical Association, 535 North Dearborn Street, Chicago, Ill. 60610.

**The Pan-Pacific Surgical Association** is giving ample notice so that physicians can make plans now to attend the **Tenth Congress of the Association and the Second Mobile Educational Seminar** in the fall of 1966.

Part I, the Honolulu portion of the Congress, will convene at the Princess Kaiulani Hotel in Honolulu, Hawaii, on September 20, 1966 and continue through September 28. Part II and Part III will depart Hawaii on September 28 and travel to Japan and Hong Kong, with Part II returning to San Francisco, California, on October 10 in time for the opening of the meeting of the American College of Surgeons. Part III will continue on to the Philippines, Thailand, India, Singapore, Australia and New Zealand, returning to Hawaii on November 1, 1966.

The Tenth Congress offers an extensive scientific program in 9 different surgical specialties and 2 related specialties: General Surgery, Ophthalmology, Otolaryngology, Thoracic Cardiovascular Surgery, Neurosurgery, Obstetrics and Gynecology, Orthopedics, Plastic Surgery, Urology, Anesthesiology, and Radiology.

An invitation is extended to all physicians to attend and participate in these meetings. For further information write Pan-Pacific Surgical Association, Room 236, Alexander Young Building, Honolulu, Hawaii 96813.

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# General News

**Dr. Edward D. Freis**, Senior Medical Investigator at Mt. Alto Veterans Hospital, was **elected President of the Washington Heart Association** at its annual meeting, June 29, in the Medical Society's building. Dr. Freis, an Associate member of the D. C. Medical Society, has been a member of the Heart Association since 1958 and Vice President since 1962. He is Associate Professor of Medicine at Georgetown University School of Medicine.

Dr. John F. Finnegan was elected President-elect. Other officers are: Dr. John M. Evans, Vice President; Mrs. Bernard J. Walsh, Secretary; Mr. John Sumter, Treasurer, and Mr. Kenneth Birgfeld, Assistant Treasurer.

Among those newly elected to 2-year terms on the Board were Drs. Charles A. Hufnagel, George A. Kelser, Frank G. MacMurray, William C. Manion, and Thomas W. Mattingly. Reëlected to serve for 2 years on the Board were Drs. Clayton B. Ethridge, Jack Kleh, Andrew G. Prandoni, John A. Reisinger, and George E. Schreiner.

**DR. EDWARD D. FREIS (right), newly elected President of the Washington Heart Association, receives the congratulations of the retiring President, Dr. W. Proctor Harvey, at the Annual Meeting of the Association, June 29.**

**The Washington Academy of Surgery** elected new officers, May 22. They are:

Dr. Duane C. Richtmeyer, *President*; Dr. Joseph Rogers Young, *Vice President*; Dr. Roy G. Klepser, *Secretary-Treasurer*; and Dr. Philip H. Philbin, *Assistant Secretary-Treasurer*.

Meetings are scheduled for the second Monday of October, December, February, April and May.

**Psychiatric consultants** are urgently needed at the **D. C. Children's Center** in Laurel, Maryland. This institution provides care for approximately 2,000 children and adolescents. The activities of the consultant are devoted primarily to conferences with social workers, administrative personnel, and cottage counselors to assist them in the understanding of specific problems and the development of more effective programs. Interested psychiatrists should contact Dr. Beryl C. Kester, Chief of Psychiatry at the Center; telephone 776-7016.

**The American College of Physicians** has issued a booklet, **"Your Physician Looks at Family Health,"** which features reports by experts in the fields of public health, adolescent medicine, alcoholism and nutrition. The material is based on presentations at a public information forum presented during the 45th Annual Session of the College in Atlantic City. Single copies may be obtained without charge from the American College of Physicians, 4200 Pine Street, Philadelphia, Pa. 19104.

**The American Public Health Association** announces publication of the tenth edition of **"Control of Communicable Diseases in Man"** in January 1965. This edition, approximately 400 pages, will provide information and control measures for 148 diseases of national and international importance. It is an official report of the American Public Health Association and is approved by the Association of State and Territorial Health Officers and the Surgeons General of the U. S. Army and Air Force. The price of a single copy before and after publication is $1.50. Requests should be sent to the American Public Health Association, 224 East Capitol Street, Washington, D. C. 20003.

**The Board of Trustees of the Greater Southeast Community Hospital Foundation, Inc.** announced, July 11, that the new hospital being built at 13th and Southern Avenue, S.E. will be called the **Morris Cafritz Memorial Hospital**. The late Mr. Cafritz, well known real estate developer and civic leader, had been active in planning and raising funds for the hospital, which is scheduled for completion in the fall of 1965. It will have space for 400 beds and will serve a large part of Prince Georges County as well as Southeast Washington.

**DR. WILLIAM P. McKELWAY** (center, standing), President of the George Washington University Medical Alumni Association, has just conferred the Award of Merit of the Association upon Dr. Frederick Y. Donn (left) at the Association's annual banquet, June 5. Dr. Howard E. Ticktin (right) was Chairman of the Committee on Awards which made the selection. Seated is the speaker of the evening, Dr. Glenn T. Seaborg, Chairman of the Atomic Energy Commission.

**The Medical Alumni Association of George Washington University** held its annual banquet on June 5 at the Hotel Statler-Hilton. Dr. Glenn T. Seaborg, Chairman of the Atomic Energy Commission, gave the principal address, entitled "The Humane Atom: Radioisotopes at the Service of Medicine."

Dr. Frederick Y. Donn was presented the Award of Merit of the Association "in recognition of his distinguished service and outstanding contributions to the field of medicine." Dr. Donn, a Washington surgeon, helped in the reorganization of the Alumni Association.

In special ceremonies Dr. William P. McKelway, President of the Association, was succeeded in office by Dr. George Speck. Other officers for 1964–65 are: Dr. George A. Kelser, Jr., First Vice President; Dr. George A. Boinis, Second Vice President; Dr. Maxine Ann Schurter, Secretary; and Dr. Jerome H. Epstein, Treasurer. Dr. Richard E. Palmer is the new President-elect.

**Dr. Robert H. Felix, Director of the National Institute of Mental Health** and Assistant Surgeon General of the Public Health Service, will retire on October 1 to become Dean of the School of Medicine, St. Louis University in St. Louis, Missouri. He has headed NIMH since its establishment in 1949.

As Chief of the Division of Mental Hygiene of the Bureau of Medical Services (predecessor of NIMH) Dr. Felix helped to develop the National Mental Health Act of 1946 and to prepare the groundwork for the national mental health program he has administered since 1949. Dr. Felix is a Past President of the American Psychiatric Association and has received many honors in the professional and academic world.

**Dr. Clinton C. Powell, Director of the National Institute of General Medical Sciences,** retired on July 31. He has accepted appointment as Associate Coördinator of Medical and Health Sciences at the University of California and assumed his new duties on August 15. He was the first Director of this Institute, which was established by Congressional authorization in 1962 for the prime purpose of fostering basic research in the medical and health-related sciences. He was Assistant Director of the National Institute of Allergy and Infectious Diseases in 1961–62 and held several posts in the Division of Research Grants from 1958 to 1961.

**Dr. Frederick L. Stone** succeeded Dr. Powell as Director of the National Institute of General Medical Sciences, effective August 7. Dr. Stone has been Chief of the Division of Research Facilities and Resources since 1962.

**The World Medical Association** has issued its first *International News Items*. The first copy of this new publication (July-August 1964) consists of 4 pages and, as the name implies, most of the items are brief news notes.

**BEUCHLER'S**

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# Personals

**Dr. J. Robert Andrews** has been appointed Professor of Radiology at Georgetown University School of Medicine and will also serve as Director of Radiotherapy in the University Hospital. The appointment became effective August 1. He has been a member of the faculty since 1959.

Dr. Andrews graduated in medicine from Western Reserve University in 1932 and in 1946 received the degree, Doctor of Science in Medicine, from the University of Pennsylvania. From 1950 to 1955 he was Professor and Director of Radiology at Bowman Gray School of Medicine of Wake Forest College and the North Carolina Baptist Hospitals, Inc., Winston-Salem, N. C. Since 1955 he has been Chief of the Radiation Branch at the National Cancer Institute in Bethesda.

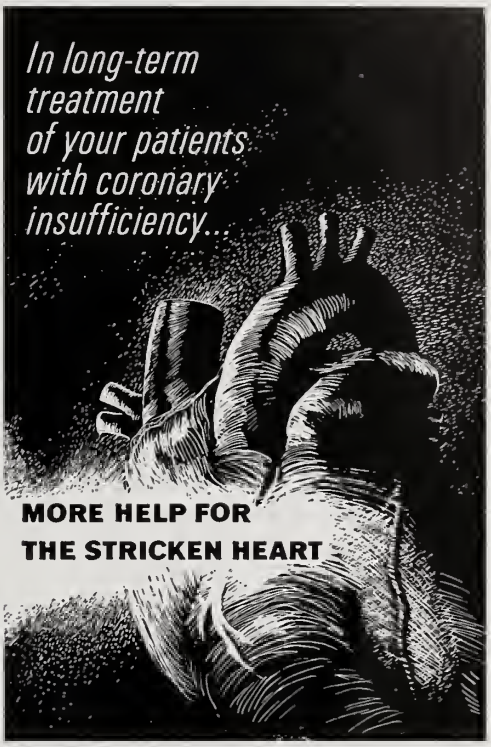
Dr. Andrews has devoted his career largely to research, especially to the uses and effects of radiation in the diagnosis and treatment of cancer.

**Dr. Charles S. Tidball** is now Professor and Chairman of the Department of Physiology at George Washington University School of Medicine. Before joining the Department of Physiology at George Washington in 1959, he practiced medicine briefly on the staff of Mendota State Hospital in Madison, Wisconsin. He is an alumnus of the University of Chicago School of Medicine and an Associate member of the D. C. Medical Society.

**Dr. Leon Salzman** took office as President of The Academy of Psychoanalysis during its Ninth Annual Meeting in Los Angeles early in May. Dr. Salzman is Professor of Clinical Psychiatry at Georgetown University School of Medicine and a member of the Board of Directors of the Washington School of Psychiatry.

Serving on the Board of Trustees of the Academy are 2 physicians from the Washington area, **Dr. Paul Chodoff**, of Washington, **and Dr. Dexter M. Bullard**, of Rockville, Md.

**Dr. Karl C. Corley** has been invited to represent the Americal College of Radiology on the Dependents' Medical Care Advisory Committee of the Department of Defense. The announcement was made by Dr. Shirley C. Fisk, Deputy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**Major General Oliver K. Niess, USAF, MC (Ret.)** is President-elect of the American College of Chest Physicians. He was voted to this office at the 30th Annual Meeting of the College in San Francisco in June. General Niess is an Honorary member of the D. C. Medical Society.

Dr. Alfred Goldman, of St. Louis, took office as President for 1964–65.

**Dr. James M. Moss**, an Associate member of the D. C. Medical Society, has been elected President of the Heart Association of Northern Virginia. Dr. Moss is Clinical Professor of Medicine at Georgetown University, Chief of Medicine at Circle Terrace Hospital in Alexandria, Va., and Past President of the Alexandria City Medical Society.

**Dr. Ralph G. Beachley**, Director of Public Health, Arlington County, Va., received a citation, June 6, from the General Alumni Association of George Washington University for his "outstanding contribution as a teacher in the School of Medicine for the past 25 years." Dr. Beachley has served as Adjunct and Clinical Professor of Public Health Practice since 1939.

**Dr. Luther L. Terry,** Surgeon General of the Public Health Service, received an Honorary Fellowship in the American College of Hospital Administrators "for his distinguished career in the public health field." Dr. Terry, an Honorary member of the D. C. Medical Society, received this recognition at the College's 30th Annual Convocation, August 16.

**Dr. Paul R. Wilner** has been promoted from Clinical Associate Professor of Medicine to Clinical Professor of Medicine at Georgetown University School of Medicine.

**Dr. William Travis Gibb** was installed, July 7, as President of the Civitan Club of Washington.

**Dr. Jonathan M. Williams** has been in Ecuador and Colombia, South America, this past summer, where he gave a paper on "The Treatment of Head Injuries in Children" in Cuenca and Cali, respectively. In both countries, at the request of local physicians, he examined patients and performed operations.

Mrs. Williams, immediate Past President of the Woman's Auxiliary to the Medical Society of the District of Columbia, set up a program to administer Sabin oral vaccine to 100 children in Cuenca, Ecuador.

**Dr. William T. Lady** has been elected to Fellowship in the American College of Obstetricians and Gynecologists.

# Obituaries

## Frederick C. Schreiber, M.D., F.A.C.S.

(1892–1964)

Dr. Frederick C. Schreiber, otolaryngologist, a Life member of the Medical Society of the District of Columbia, died at his home, June 23, 1964.

Dr. Schreiber was born in Lansing, Michigan, September 18, 1892. A graduate of old Central High School in Washington, he received his medical degree from Georgetown University in 1914. He interned at Georgetown Hospital the following year. He directed his interests toward otolaryngology by resident training at the Episcopal Eye, Ear and Throat Hospital in Washington, St. Luke's Hospital in New York City, and the New York Eye and Ear Infirmary. His studies were interrupted by service in the Army Medical Corps during World War I.

After the War Dr. Schreiber went abroad for postgraduate study in Vienna. He returned to Washington to establish his practice. He was on the staffs of Doctors and Providence Hospitals.

He became an Active member of the D. C. Medical Society in 1922 and a Life member in 1962. He was a Fellow of the American College of Surgeons and a member of the American Medical Association and the Georgetown Clinical Society. He contributed many papers in the field of his specialty to the literature.

Surviving him are his wife, Mrs. Mary Wilson Schreiber, and a daughter, Miss Mary C. Schreiber, both of the home address, 2740 34th Place, N.W. He also leaves a brother, Herman Schreiber, of Lansing, Michigan, and 2 sisters, Mrs. Henry J. Schneider, of Washington, and Mrs. Walter Weidman, of Phoenix, Arizona.

## Silas B. Hays, M.D., F.A.C.P.

(1902–1964)

Major General Silas B. Hays, MC, USA (Ret.), formerly Surgeon General of the Army and recently Director of the Blood Program of the Eastern Area Headquarters of the American Red Cross, died, July 24, 1964 at his home, 1813 North Herndon Street, Arlington, Va.

General Hays was born in St. Paul, Minn., February 18, 1902. He received his medical degree from the University of Iowa in 1928. He was a graduate of the Army Medical School and the Medical Field Service School.

Following a military internship at Letterman General Hospital, San Francisco, he accepted a commission in the Regular Army in 1929. Through the years he moved up in responsibility until he held the office of Surgeon General of the Army from 1955 until 1959. When he retired in 1959 he joined the American Red Cross as Director of the Blood Program in the Eastern United States.

He was awarded the Legion of Merit and the Distinguished Service Medal from his own Government and the Croix de Guerre with palm and the Order of Sante Publique from the French Government.

General Hays was a Fellow of the American College of Physicians and a member of the American Medical Association and the Association of Military Surgeons of the United States.

He leaves his wife, Mrs. Marjorie Murtagh Hays, and a son, James M. Hays, of the home address, and a daughter, Mrs. Ellen Hays Raetzsch, of Seguin, Texas.

## Joseph Jay Bunim, B.S., M.D., F.A.C.P.

(1906–1964)

Dr. Joseph J. Bunim, Director of the National Institute of Arthritis and Metabolic Diseases, died, July 8, 1964 at the Clinical Center of the National Institutes of Health. He was a recognized authority on rheumatic diseases.

Dr. Bunim was born in Russia, November 5, 1906. He grew up in New York City, graduating from the College of the City of New York in 1926 and from New York University College of Medicine in 1930. He interned at Bellevue Hospital and the New Haven Hospital of Yale University, and returned to Bellevue as a resident. He continued his postgraduate studies at New York University College of Medicine in pathology, bacteriology and immunology. He was also on its faculty as Assistant in Medicine from 1936 to 1939.

From 1939 to 1952 Dr. Bunim was Chief of the Arthritis Clinic of New York University Division, Bellevue Hospital. In the latter year he came to NIH, where he directed research and evaluated therapy for arthritis and connective tissue diseases. He was the first to use synthetic cortisone-like drugs for arthritis therapy.

Dr. Bunim was Clinical Professor of Medicine at Georgetown University School of Medicine, Associate Professor of Medicine at Johns Hopkins University, and Attending Physician to Walter Reed Army Hospital.

He contributed many articles to the literature. He held offices in many scientific organizations and was a member of the governing boards of several institutions. He was a Fellow of the American College of Physicians, the Washington Academy of Sciences, and the New York Academy of Medicine. He was elected to Associate membership in the D. C. Medical Society in 1956.

His wife, Mrs. Miriam S. Bunim, of 7506 Maple Avenue, Chevy Chase, Md., survives him together with a son, Michael, living at home. He also leaves 2 daughters, Leslie, a student at Harvard Medical School, and Mrs. Elizabeth Karten, of Washington.

## John Dyer Foley, B.S., M.D.

(1905–1964)

Dr. John D. Foley, a specialist in internal medicine and a long-time medical officer in the Navy, died, August 9, 1964 at Sibley Memorial Hospital. He lived at 4600 Connecticut Ave., N.W.

Dr. Foley, a native of Iowa, was reared in Washington. He received his Bachelor of Science degree from Georgetown University in 1927 and his medical degree, also from Georgetown, in 1929. Commissioned in the Navy upon graduation, he interned at the U. S. Naval Hospital in Brooklyn, New York, and served in the Navy for 17 years, mostly in the South Pacific area. He held the commission of Lt. Commander when he retired in January, 1947.

Shortly after retiring from the Navy he began private practice in Washington with offices at 1746 K Street, N.W. He limited his practice to internal medicine.

Dr. Foley was an Active member of the Medical Society of the District of Columbia from 1947 and was a member of the American Medical Association.

Surviving him are 5 sisters: Mrs. Daniel F. Ahern, of 5245 42nd Street, N.W., and Miss

Frances Foley, of 3314 Military Road, N.W., Washington; Mrs. Edward R. Talbott, 5816 Osceola Road, Sumner, Md.; Mrs. Benjamin E. Talbott, Baltimore, Md.; and Mrs. Roy G. Lucks, San Francisco, Calif.

## Thomas Miles Leonard, Ph.B., M.D.

(1910–1964)

Dr. Thomas M. Leonard, well known gynecologist and obstetrician, died, July 12, 1964 at George Washington University Hospital. He had practiced in Washington for almost 20 years. His offices were at 1746 K Street, N.W.

Dr. Leonard was born in Spokane, Washington, September 29, 1910. He received the degree, Bachelor of Philosophy, from Gonzaga University in 1933, and his medical degree from Rush Medical College, now a part of the University of Chicago, in 1937. He interned at St. Francis Hospital in Evanston, Illinois, and served a residency in obstetrics and gynecology at Chicago Lying-In Hospital and Gallinger Municipal (now D. C. General) Hospital in Washington, D. C. He practiced in Wallace, Idaho, and Helena, Montana, before beginning practice in the District of Columbia in 1945.

Dr. Leonard was on the faculty of George Washington University School of Medicine as Assistant Clinical Professor of Obstetrics and Gynecology.

He was an Active member of the Medical Society of the District of Columbia since 1945 and a member of the American Medical Association, the American College of Obstetricians and Gynecologists, the Southern Medical Association, and the Washington Gynecological Society. He was a diplomate of the American Board of Obstetricians and Gynecologists.

He leaves his wife, Mrs. Florence E. Leonard, and a son, Timothy M., of the home address, 4216 Mathewson Drive, N.W.

A Thomas Miles Leonard Memorial Fund for the education of his son has been established at the Medical Society of the District of Columbia by Dr. Leonard's colleagues, patients and friends.

## Edward Anthony Palank, B.S., M.D.

(1917–1964)

Dr. Edward A. Palank, a general practitioner in Southeast Washington, died, July 21, 1964 at Providence Hospital.

Dr. Palank was born in Bayonne, New Jersey, October 6, 1917. He graduated from the University of Notre Dame in 1939, and from Georgetown University School of Medicine in 1943. After interning at Meadowbrook Hospital, Hempstead, New York, he served in the Army Medical Corps for almost 2 years.

In 1946 he opened his practice in Southeast Washington, where he also served the Suitland, Md. area. His offices were last located at 5203 Silver Hill Road, S.E., where he also maintained his residence.

He was elected to Active membership in the Medical Society of the District of Columbia in 1947. He was a member of the American Medical Association, the Pan American Medical Society, and the Prince Georges County Medical Society.

He leaves his wife, Mrs. Antoinette Lonien Palank; 4 sons, Edward A., Jr., Gary, Brian, and David; and a daughter, Cynthia, all of the home address. His mother, Mrs. Helen Cronan, of Uniondale, N. Y., also survives him.

## Cunningham Ramsey MacCordy, M.D.

(1924–1964)

Dr. C. Ramsey MacCordy, Associate Professor of Anesthesiology at George Washington University School of Medicine, died, July 6, 1964 at his home, 8606 Brandt Place, Bethesda, Md.

Dr. MacCordy was born in Asheville, N. C., August 12, 1924, and was reared in St. Petersburg, Fla. He received his medical degree from Tulane University School of Medicine in 1948. He interned at the U. S. Naval Hospital in San Diego, Calif., and received resident training at the U. S. Naval Hospital in Bethesda, Md., Georgetown University Hospital, and the U. S. Naval Hospital in St. Albans, L. I., N. Y.

After serving in the Regular Navy from 1948 to 1954, he joined the teaching staff of George Washington University School of Medicine. He was also anesthesiologist at the University Hospital and attending anesthesiologist at D. C. General, Glenn Dale, Mount Alto Veterans, and Mead Dental Hospitals.

Dr. MacCordy was a diplomate of the American Board of Anesthesiology and a Fellow of the American College of Anesthesiologists. He was an Active member of the Medical Society of the District of Columbia from 1956, and a member of the American Medical Association, the American Society of Anesthesiologists, the International Anesthesia Research Society, the George M. Kober Medical Society, and the Smith-Reed-Russell Medical Society.

Surviving him is his brother, Cmdr. Edward L. MacCordy, of 8607 Canterbury Drive, Annandale, Va.

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1. Welch, C. E., Diverticula of the Alimentary Tract, in Conn, H. (editor): Current Therapy—1961, Philadelphia, W. B. Saunders Company, 1961, pp. 224-225.

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*Cohen, et al: J.A.M.A., 165:225, 1957.

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# BOOK REVIEWS

**Incurable Physician. An Autobiography.** Walter C. Alvarez, M.D. Price, $4.95. Pp. 274. Englewood Cliffs, N. J.: Prentice Hall, 1963.

Dr. Walter Alvarez studied medicine in San Francisco in the first decade of the 20th century. At a time when San Francisco was still rebuilding from an earthquake, he went off to be a doctor in a mining camp in northern Mexico. In this interesting volume he recalls his days of practice and research in northern Mexico, San Francisco, and, finally, at the Mayo Clinic in Rochester.

Dr. Alvarez's contemporaries will enjoy his references to the people at Mayo Clinic in the 1930's, and his juniors will appreciate the lively manner in which he analyzes the medical world of the past 50 years.

This book is appreciably more than a biography. It is a highly satisfactory reconstruction of a medical way of life in which Alvarez lived and worked. All too often the lives of physicians are set forth with the purpose of edifying readers. This book brings to many an unusual insight into the life of an individual who practiced medicine and attempted to improve the science of caring for patients.

In general, the autobiography is written in a very easy style, and the warmth and enthusiasm for life of the author are easily evident throughout the pages.

Walter Polner

**The Specialties in General Practice,** 3rd ed. Edited by Russell L. Cecil, M.D., and Howard F. Conn, M.D. Price, $17.50. Pp. 676, illustrated. Philadelphia: Saunders, 1964.

It would be well to mention the subject matter covered by this excellent source of reference and review for the general practitioner of medicine.

The medical and surgical conditions that are of interest and concern to the general practitioner, such as diseases of the anus, rectum and colon and problems of urology, are especially well presented as are also those relating to obstetrics and gynecology. The section on pediatrics is a complete aid in itself. The chapters on ear, eye, nose and throat diseases are both informative and instructive, while those on glaucoma and the use of the ophthalmoscope and the tonometer are well worth the price of the book.

With the reported increase of venereal disease in many parts of the country it is fitting that excellent presentations of syphilis are included in the chapter on Dermatology.

Drs. Douglas D. Bond, John M. Flumerfelt and Norman L. Roulet have done an amazing job of separating fact and theory of the past 5 decades so that the practical aspects of psychiatry are presented for the general practitioner. Their discussion of drugs in the therapy of psychiatry is most informative. In conclusion they admit that drugs have often done more harm than good when used in an at least unconscious attempt at substitution for a good doctor-patient relationship "for there is no substitute." The reviewer agrees that the new drugs have far from eliminated the need for psychiatric referrals and specialized treatment.

The last chapter, Industrial Medicine, has to do with the latest recognized medical specialty, occupational health.

The author of this chapter, in discussing special examinations for employees whose jobs have not been up to par or who have shown evidence of illness states that "The physician must explain to the employee that the result of the examination will not necessarily be confidential and may be disclosed to the employer."

I believe strongly that a physician should never contribute to the weakening of that time-honored custom of maintaining the confidentiality of doctor-patient relationship. The confidence and respect of employees for their doctor will be weakened. Even though the employer contributes to the medical expenses, as in periodic health examinations, the employer is entitled to an "interpretative report" which states only that in which the employer is primarily interested, i.e., whether or not the employee is physically able to carry out the routine duties of a particular job or position in an efficient manner without hazard to himself or to another employee.

Medical reports, as, for instance, a psychiatric report, should not be sent to a lay employer or official. Medical findings should be discussed with the employee and in some instances with his family and the medical report sent directly to the employee's personal physician.

An error was noted in connection with the refrigeration of smallpox vaccine. It should be stored below 32°F and not just "below 50°F."

Allen S. Cross, M.D.

**Episode.** Eric Hodgins.* Price, $5.00. Pp. 272. New York: Atheneum, 1964.

This short, delightfully written book chronicles the author's experiences through a series of illnesses. In less than 2 years he suffered a cerebrovascular accident, a period of depression deep enough to require 3 months' hospitalization, and a fractured hip. In this sense, it is a case report. Its first person presentation is novel for physician readers, however; and its departure from our usual, stilted style is refreshing.

Though not a textbook, and not written by a physician, its discussions of symptoms and their meanings in all phases of the patient's life add a new depth to the understanding of those who treat disease. We have all been taught how to test for various disturbances or losses of body functions, but this author teaches us more. He describes vividly the patient's own impressions of such abnormalities as hemiparesis, aphasia, and suicidal thoughts. Appreciating these impressions may help the physician to evaluate more fully his patient's responses to his questions and his tests.

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* Formerly Editor-in-chief and Publisher of Fortune Magazine; later Vice President of Time, Inc.

Mr. Hodgins' comments are not only clinical. He discusses physician attitudes and approaches, hospital practices, nursing care, and problems of financing illness. His opinions are candid, but he removes much of the sting from the unfavorable ones with his delightful humor. In discussing hospital noise, for example, he visualizes the old-fashioned "crash box" of stage productions as being passed from floor to floor almost on cue. Beneath this apparent caricature the basic criticism is obvious. Each such point is presented so persuasively that the reader finds himself smiling in self-satisfaction at one passage, then considering how he can help change a poor situation he encounters in the next; but he never becomes angry.

This book affords us a look at ourselves through the eyes of an intelligent and unusually perceptive man whose writing skill grants us the full scope of his vision. It is instructive enough to belong on every physician's reading list.

Robert R. Montgomery, M.D.

**Elementary Medical Statistics,** 2nd ed. Donald Mainland, M.B., Ch.B., D.Sc., F.R.S.E., F.R.S.C., F.A.S.A. Price, $9.00. Pp. 381. Philadelphia: Saunders 1963.

This textbook is the second edition of Dr. Mainland's work which was first published in 1952. In an era when our desks are covered and our libraries are full of papers reporting research, clinical trials, opinions, etc., not only is the need for critical evaluation at the reader level great but the approach and evaluation of the work by the author or investigator himself are of utmost importance. All too frequently we see papers in which the veriest tyros may find fault with the inadequacy of the sample and question the conclusions drawn from the statistics.

This book when diligently used could go a long way to reducing or eliminating many of the questions asked in this area by readers of papers. The book is interestingly constructed in that each chapter and each subdivision of chapters begins with a question which the investigator asks himself and is so printed. For example, the first question asked: "Is our project actually research, or is it a demonstration or an educational program or provision of improved services?" Other questions: "Are we going to turn a blind eye on some awkward bit of evidence?" "What skeleton layout must we prepare to receive our results?" The author goes on to answer these questions and to give illustrations of the pitfalls which may occur when these and similar questions are not adequately or completely answered.

There is a detailed description of terminology which to a novice in statistical method is a real revelation. The author discusses evaluation of results, comparisons, probabilities, and the drawing of conclusions.

This is not a handbook for easy reading nor is it a necessity for the author of case reports. It is a useful volume for the serious investigator who is going to collect a series of data and draw valid conclusions therefrom. It will guide him through the approach to the accumulation of data, the nature and size of the sample, the posting and evaluation of his data, and the conclusions derivable therefrom. It will also be an interesting work for the non-investigator who seeks to broaden his general knowledge.

Myer H. Stolar, M.D.

**The Small Intestine. Its Function and Diseases.** Thomas W. Sheehy, M.D., F.A.C.P., and Martin H. Floch, M.S., M.D. Price, $20.00. Pp. 479, with 129 illustrations. New York: Hoeber, 1964.

Sheehy and Floch in this splendid monograph on the Function and Diseases of the Small Intestine have compiled a practical approach to their subject. It is divided into 2 parts. Part I is devoted to Function and Diagnostic Testing of the Small Intestine. Some chapters describe clearly and in detail carbohydrate, lipid and protein metabolism as well as diagnostic radiography of the small bowel. Outstanding is the discussion of peroral biopsy, which is well documented by the authors who have had abundant experience in this relatively recent and valuable diagnostic procedure. Part II deals with Diseases of the Small Intestine. The most impressive features are the chapters on "The Malabsorption Syndromes" and "Sprue." Here again, the personal experience of the co-authors, numerous illustrations, completeness and continuity of the text and extensive references make this an outstanding book. It is especially recommended for the internist, gastroenterologist and investigator.

Fred A. J. Geier, M.D.

**Ciba Foundation Study Group No. 16: The Immunologically Competent Cell: Its Nature and Origin.** Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P, and Julie Knight, B.A. Price, $2.95. Pp. 110, with 18 illustrations. Boston: Little, 1963.

This is the publication of a one-day study group on "The Immunologically Competent Cell" under the auspices of the Ciba Foundation.

The information in this small book is highly technical and is directed toward the immunological capability of certain cell types, specifically lymphocytes. There is a discussion by various specialists on such subjects as Fluorescent Antibody Technique, The Role of Small Lymphocytes in Rejection of Skin Homografts, Cytophilic Antibody, The Role of the Thymus in the Origin of Immunological Competence, and the Immunologically Competent Cells in the Fowl.

Following presentation of these subjects, there was a discussion by various authors.

This subject will have a limited appeal to certain investigators interested in research immunology.

Vernon E. Martens. M.D.

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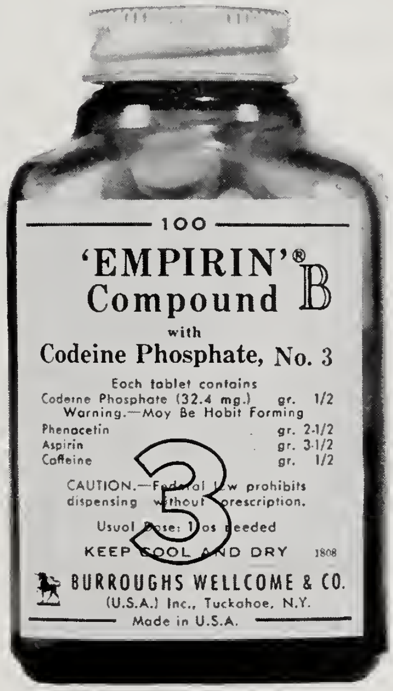

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## NATIONAL AND REGIONAL MEETINGS

October 10–14: American Society of Anesthesiologists. Americana Hotel, Bal Harbour, Fla. Address: Mr. J. W. Andes, *Executive Secretary*, 515 Busse Highway, Park Ridge, Ill.

October 11–14: Medical Society of Virginia. Golden Triangle Hotel, Norfolk, Va. Address: Mr. Robert I. Howard, *Executive Secretary*, 4205 Dover Road, Richmond 21, Va.

October 16–20: American Medical Women's Association. Park Sheraton Hotel, New York. Address: Dr. Mary A. Sears, *Secretary*, MD Anderson Hospital, Houston 25, Texas

October 16–24: American Society of Clinical Pathologists. Americana Hotel, Bal Harbour, Fla. Address: Miss Eleanor F. Larson, *Executive Secretary*, 445 North Lake Shore Drive, Chicago 11, Ill.

October 18–21: American College of Gastroenterology. Roosevelt Hotel, New York. Address: Mr. Daniel Weiss, *Executive Director*, 33 West 60th Street, New York, N. Y. 10023

October 18–23: American Academy of Ophthalmology and Otolaryngology. Palmer House, Chicago. Address: Dr. William L. Benedict, *Executive Secretary*, 15 Second Street, S.W., Rochester, Minn. 55901

**October 20–22: Association of Military Surgeons of the United States. Sheraton-Park Hotel, Washington. Address: Brig. General Frank E. Wilson, MC, USAR, Executive Director, 1500 Massachusetts Avenue, N.W., Washington, D. C. 20005**

October 23–27: American Heart Association. Chalfonte-Haddon Hall, Atlantic City, N. J. Address: Mr. Rome A. Betts, *Executive Director*, 44 East 23rd Street, New York, N. Y. 10010

October 24–29: American Academy of Pediatrics. New York Hilton Hotel, New York. Address: Dr. E. H. Christopherson, *Executive Director*, 1801 Hinman Avenue, Evanston, Ill.

October 28–30: American Cancer Society. Biltmore Hotel, New York. Address: Mr. Lane W. Adams, 219 East 42nd Street, New York, N. Y. 10017

**November 9–13: American College of Chest Physicians: Postgraduate Course No. 5. Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs. International Inn, Washington. Address: Executive Director, ACCP, 112 East Chestnut Street, Chicago, Ill. 60611**

**November 16–18: Annual Scientific Assembly, The Medical Society of the District of Columbia. Hotel Statler-Hilton, Washington. Address: Mr. George W. Cooley, Executive Director, 1718 M Street, N.W., Washington, D.C. 20036**

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# BOOKS RECEIVED

Acknowledgment is made of the following books which have recently been received.

**Textbook of Otolaryngology,** 2nd ed. David D. DeWeese, M.D., and William H. Saunders, M.D. Price, $9.25. Pp. 523, with 405 illustrations. St. Louis: Mosby, 1964.

**The Armed Forces Institute of Pathology. Its First Century 1862–1962.** Robert S. Henry, A.B., LL.B., Litt.D. Price, $4.25. Pp. 422, with 138 illustrations. Washington 25, D. C.: U. S. Government Printing Office, 1964.

**Marriage Counseling in Medical Practice. A Symposium.** Edited by Ethel M. Nash, M.A., Lucie Jessner, M.D., and D. Wilfred Abse, M.D. Price, $8.00. Pp. 368. Chapel Hill: University of North Carolina Press, 1964.

**New and Nonofficial Drugs. An annual compilation of available information on drugs, including their therapeutic, prophylactic and diagnostic status, as evaluated by the Council on Drugs of the American Medical Association.** Pp. 863. Philadelphia: Lippincott, 1964.

**Ciba Foundation Symposium: "Disorders of Language."** Edited by A. V. S. de Reuck, M.Sc., D.I.C., A.R.C.S., and Maeve O'Connor, B. A. Price, $11.00. Pp. 356, with 35 illustrations. Boston: Little, 1964.

**The Atrioventricular Node and Selected Cardiac Arrhythmias.** David Scherf, M.D., F.A.C.P., and Jules Cohen, M.D., F.A.C.P. Price, $18.75. Pp. 466, illustrated. New York: Grune & Stratton, 1964.

**The Small Intestine. Its Function and Diseases.** Thomas W. Sheehy, M.D., F.A.C.P., and Martin H. Floch, M.S., M.D. Price, $20.00. Pp. 479, with 129 illustrations. New York: Hoeber, 1964.

**Communicable and Infectiousis Deases—diagnosis, prevention, treatment,** 5th ed. Franklin H. Top, A.B., M.D., M.P.H., F.A.C.P., F.A.A.P., F.A.-P.H.A. Price, $21.00. Pp. 902, with 133 figures and 15 color plates. St. Louis: Mosby, 1964.

**Ciba Foundation Study Group No. 16: The Immunologically Competent Cell: Its Nature and Origin.** Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P., and Julie Knight, B.A. Price, $2.95. Pp. 110, with 18 illustrations. Boston: Little, 1963.

**Ciba Foundation Study Group No. 17: Diet and Bodily Constitution.** Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P., and Maeve O'Connor, B.A. In honour of Professor J. F. Brock. Price, $2.95. Pp. 120, with 31 illustrations. Boston: Little, 1964.

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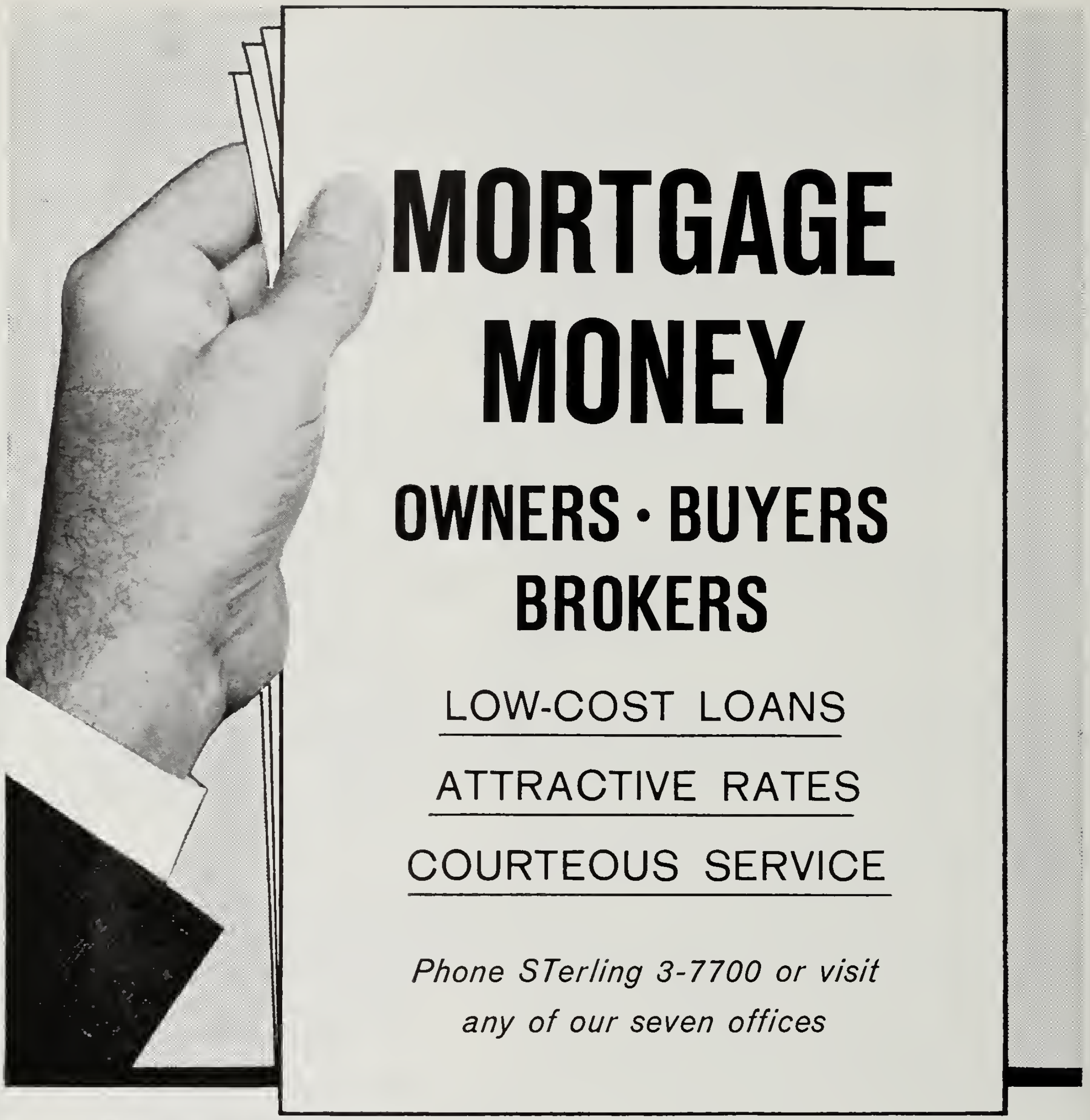

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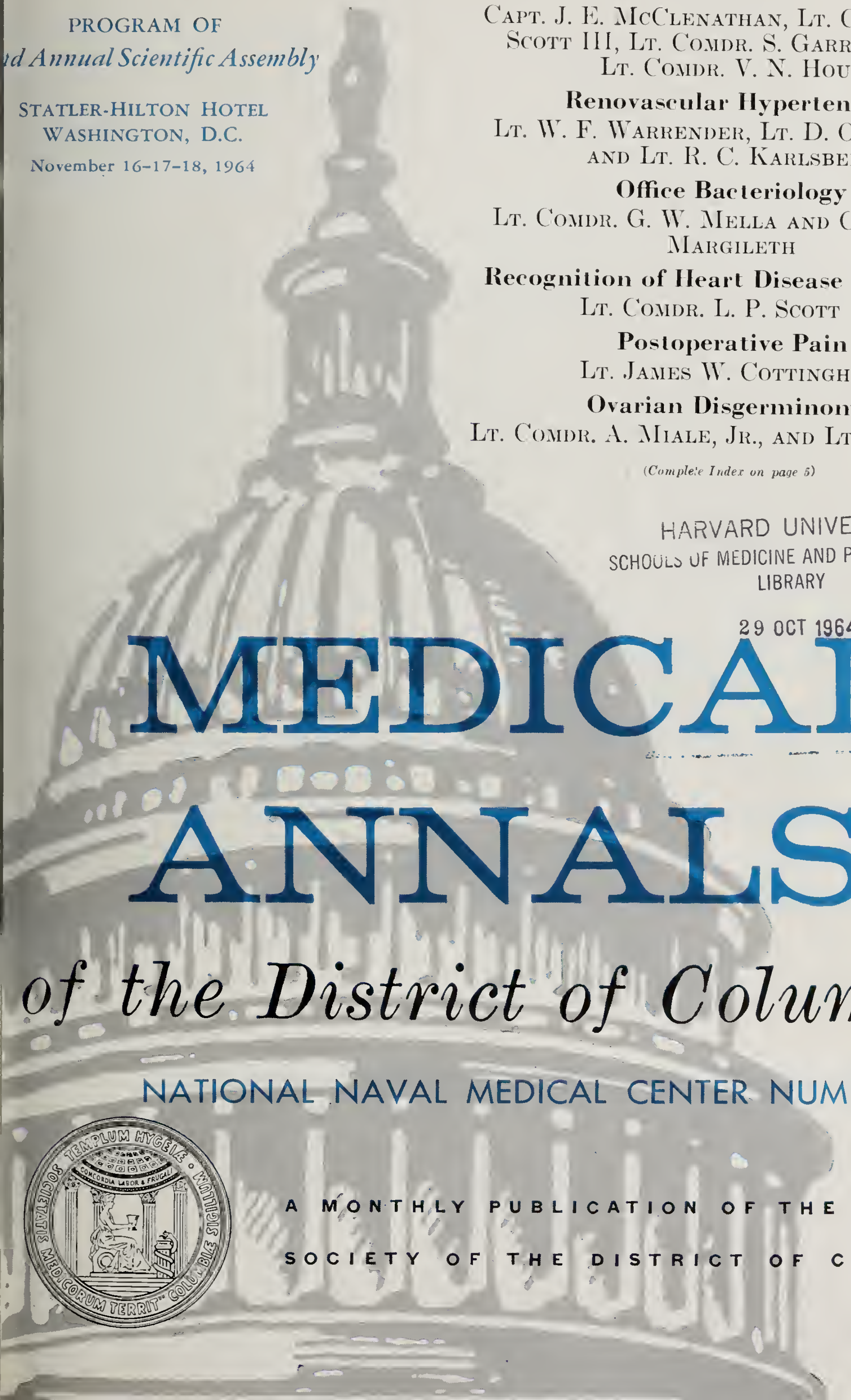

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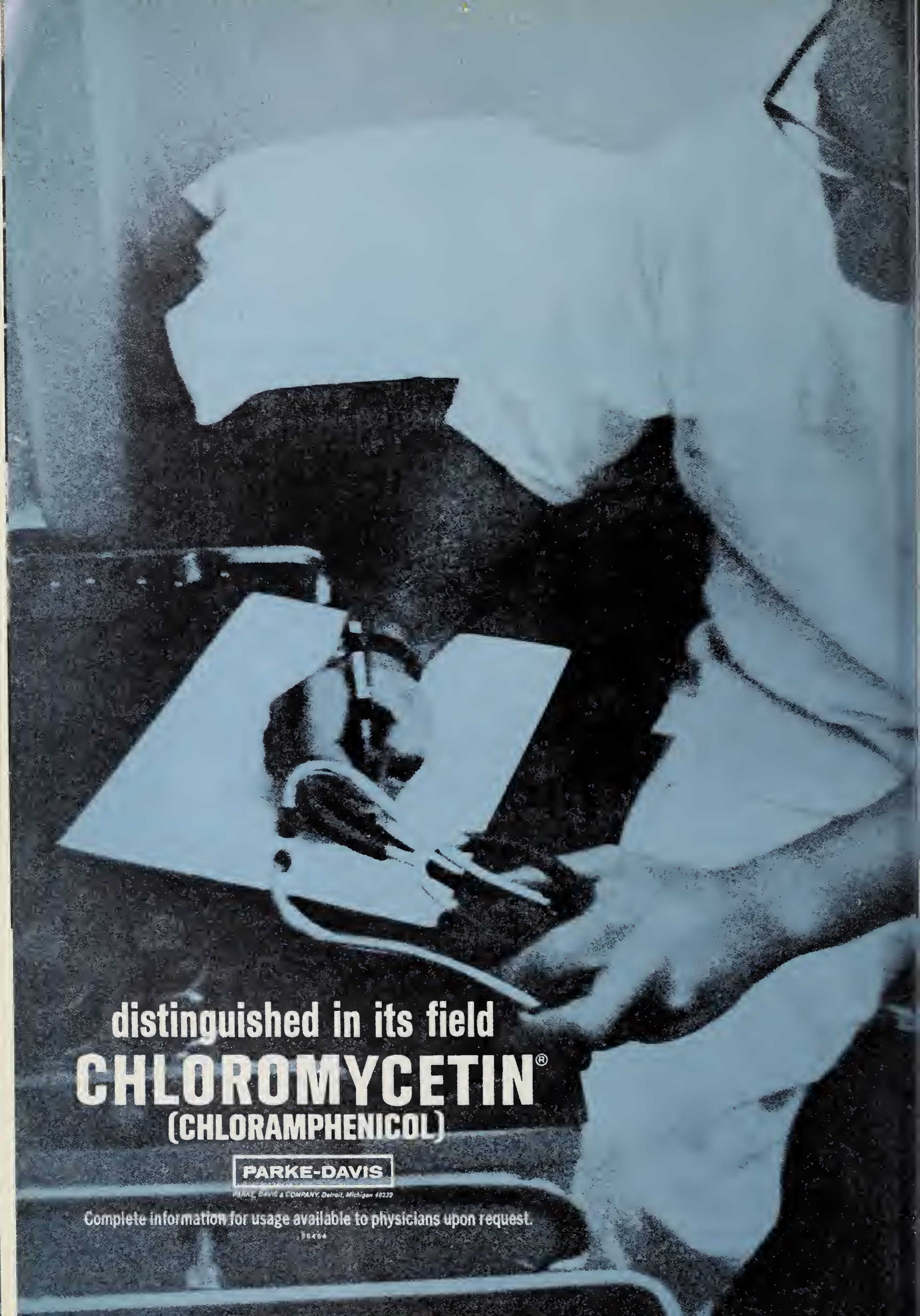

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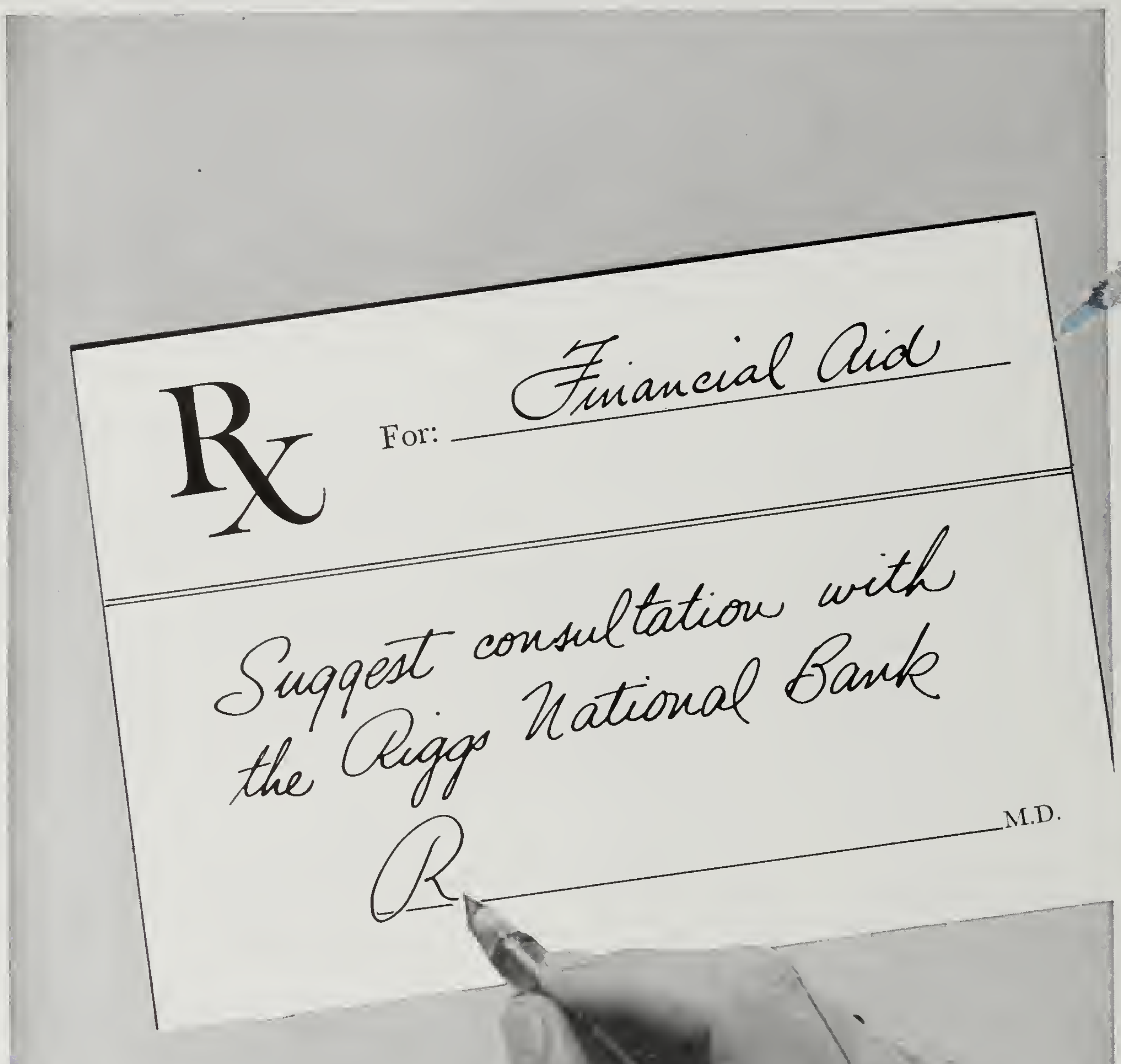

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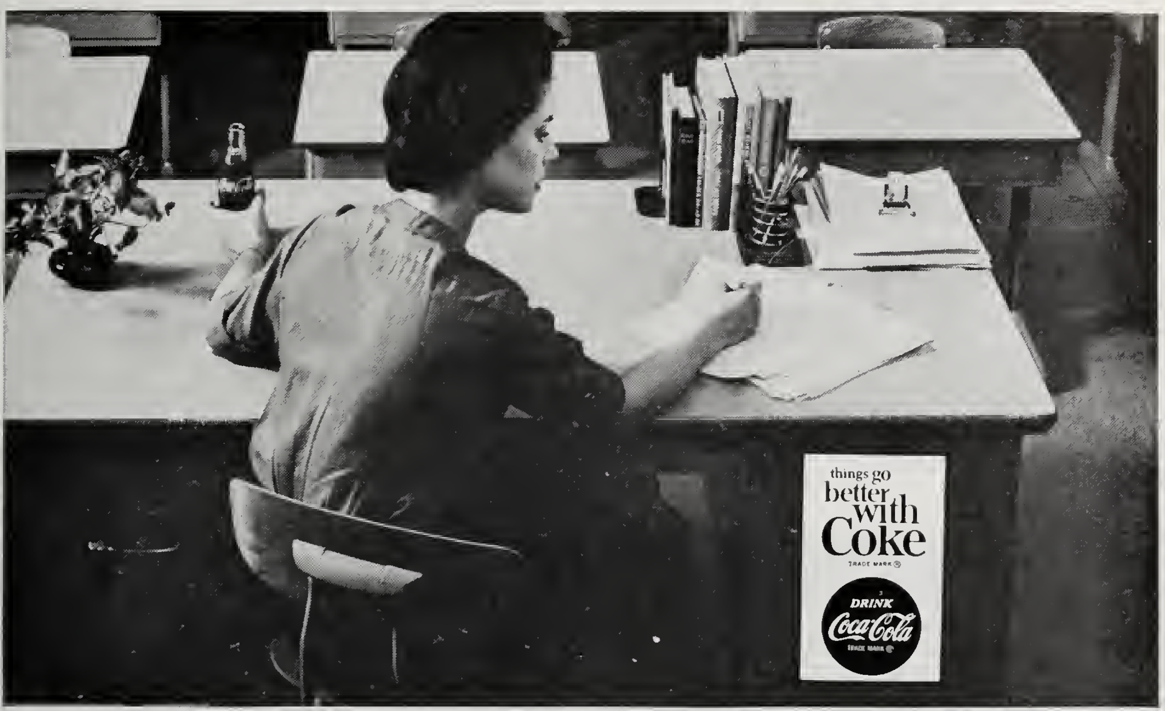

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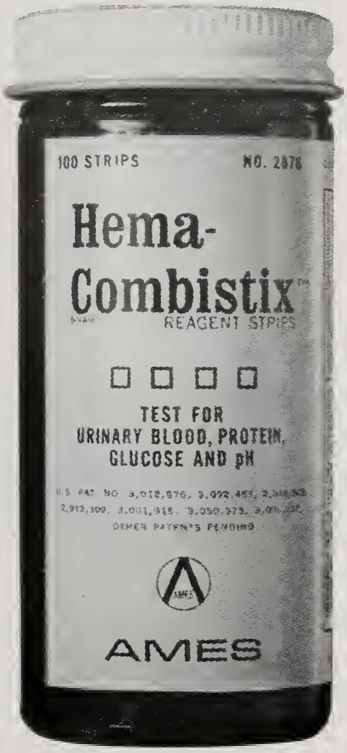

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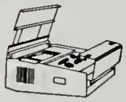

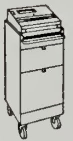

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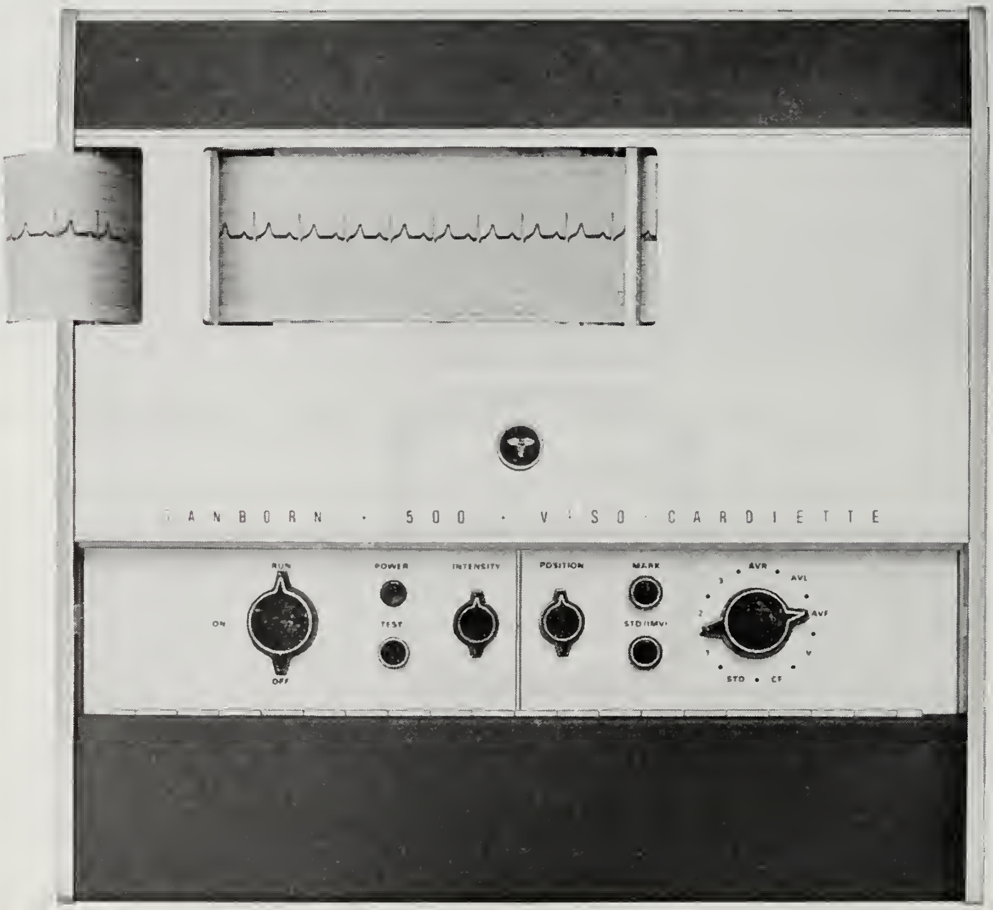

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**Ocular and Adnexal Tumors. New and controversial aspects.** Symposium sponsored by Department of Ophthalmology, Baylor University College of Medicine. Milton Boniuk, M.D., Editor. Price, $25.00. Pp. 511, with 363 figures and 4 color plates. St. Louis: Mosby, 1964.

**The Liver and Portal Hypertension,** volume 1 in the Series, **Major Problems in Clinical Surgery.** Charles G. Child 3rd, M.D., and J. Englebert Dunphy, M.D., Consulting Editor. Price, $8.50. Pp. 231, illustrated. Philadelphia: Saunders, 1964.

**Report of The Commission on the Cost of Medical Care, American Medical Association, 1964. Volume I. General Report.** David B. Allman, M.D., Chairman. Price, $4.00. Pp. 182. Chicago: American Medical Association, 1964.

**Christopher's Textbook of Surgery,** 8th ed. Edited by Loyal Davis, M.D. Price, $18.50. Pp. 1481, with 1341 illustrations on 744 figures. Philadelphia: Saunders, 1964.

**Physical Examination of the Surgical Patient,** 3rd ed. J. Englebert Dunphy, M.D., F.A.C.S., and Thomas W. Botsford, M.D., F.A.C.S. Price, $8.50. Pp. 396, with 215 figures and 1 color plate. Philadelphia: Saunders, 1964.

**Better Health for Women.** Charles Richard Alsop Gilbert, M.D., F.A.C.S. Drawings by Phyllis Anderson. Price, $4.95. Pp. 365. Garden City, N. Y.: Doubleday, 1964.

**Business Management of a Medical Practice.** Bernard D. Hirsh, LL.B. Price, $7.75. Pp. 190. St. Louis: Mosby, 1964.

**Modern Treatment,** volume 1, number 1, January 1964. E. Lovell Becker, M.D., Guest Editor, **Treatment of Renal Disease;** Edward A. Carr, Jr., M.D., Guest Editor, **Treatment of Thyroid Disease.** Pp. 228.

**Modern Treatment,** volume 1, number 2, March 1964. Carl Muschenheim, M.D., Guest Editor, **Treatment of Pulmonary Diseases;** Richard B. Capps, M.D., Guest Editor, **Treatment of Liver Disease.** Pp. 526. Price (paper), $16.00 per year. New York: Hoeber Med. Div.-Harper & Row, 1964.

**School Health Education Study 1961–1963. Summary Report of a Nationwide Study of Health Instruction in the Public Schools.** Sponsored by the Samuel Bronfman Foundation of New York City. Elena M. Sliepcevich, Director of the Study. Pp. 74. Washington, D. C.: School Health Education Study, 1964.

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## National Naval Medical Center Number

This is the seventh of a third series of special numbers of the Medical Annals, the scientific material for which is supplied by medical institutions and scientific organizations in the Washington Metropolitan Area. For the National Naval Medical Center Number the Editorial Board is indebted to Lt. Commander Vernon Neal Houk, MC, USN, Consulting Editor of the Medical Annals, who secured the papers which appear in this issue. The opinions or assertions contained therein are the private ones of the writers and are not to be construed as official nor as reflecting the views of the Bureau of Medicine and Surgery of the Navy Department or the Naval Service at Large.

# Unusual Presentations of Pulmonary Histoplasmosis

**LT. COMMANDER VERNON N. HOUK, MC, USN**

*Head, Chest and Contagion Branch, United States Naval Hospital, National Naval Medical Center, Bethesda, Maryland*

**KENNETH M. MOSER, M.D.**

*Chief, Pulmonary Sections, Georgetown University Medical Center and Georgetown Clinical Research Institute, Office of Aviation Medicine, Federal Aviation Agency*

The ubiquity of human infection with *Histoplasma capsulatum* is now rather generally appreciated, particularly in endemic areas, an appellation for which Metropolitan Washington qualifies. However, even in such endemic areas the physician must be constantly alert to the possibility of histoplasmosis, for this disease can present itself in a variety of clinical forms which create diagnostic confusion.[1-5] Histoplasmosis may masquerade as a mild flu-like episode in which chest X-ray examination is normal; a chronic wasting disease with radiographic evidence of infiltration and/or cavitation[6]; and, indeed, even as a bloody pleural effusion[5] or a cause for pneumothorax.[7] Under such circumstances it is not surprising that diagnostic interest centers upon tuberculosis, malignant disease or pyogenic processes, while the possibility of histoplasmosis is neglected.

It is the purpose of this communication to describe 4 patients with histoplasmosis who presented diagnostic problems of some magnitude.

## Report of Cases

**Case 1.** A.H., a 45-year-old Caucasian man, was admitted to the U.S. Naval Hospital, Bethesda, Maryland for evaluation of a chest X-ray abnormality. The patient had been entirely asymptomatic. He specifically denied cough, sputum production, hemoptysis, weight loss, fever, chills, night sweats, dyspnea, chest pain, or malaise. A chest X-ray examination (70 millimeter photofluorogram) 18 months previously had been normal. On January 30, 1962 another photofluorogram was reported as demonstrating a lesion in the right midlung field. On February 19, 1962 a 17 by 14 inch chest X-ray examination (figure 1-A) demonstrated a thin-walled cavity 3 cm. in diameter in the right midlung field. There was

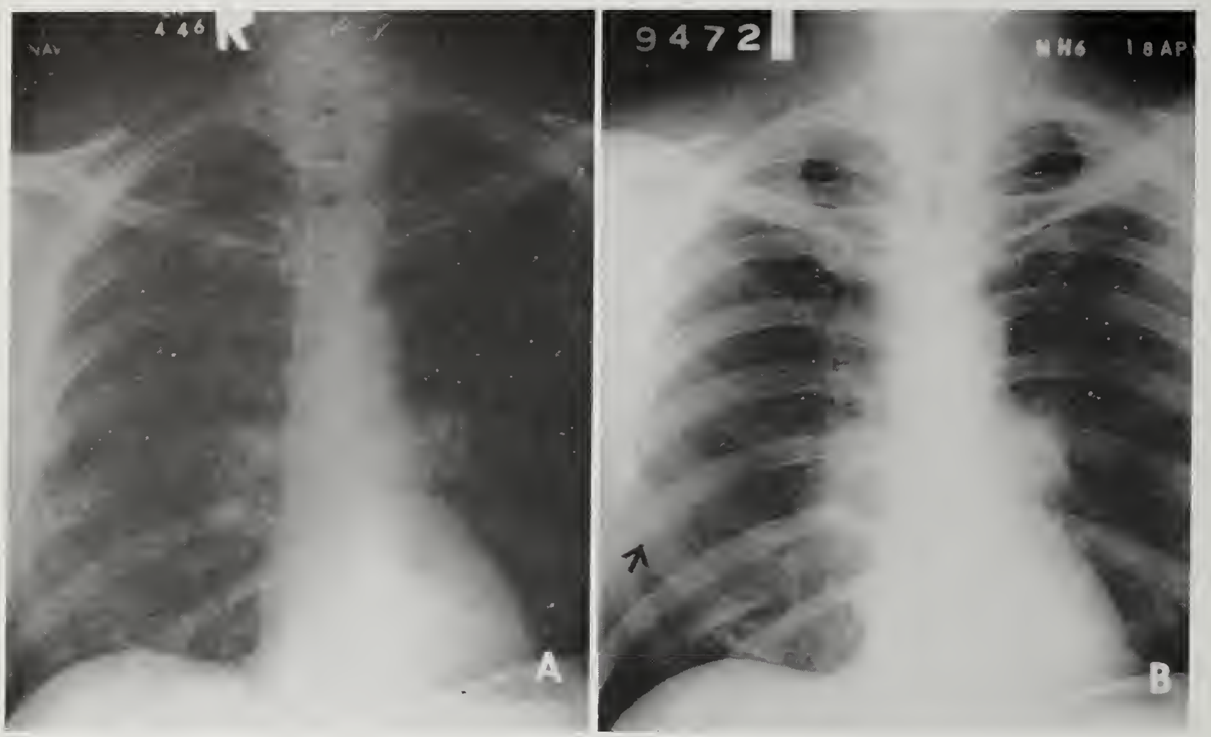

**FIG. 1. Case 1. A. Thin-walled cavity in right midlung field, February 19, 1962. B. No change in cavity, April 18, 1962.**

a minimal amount of peripheral reaction about the cavitary lesion, and there was no fluid present. There were densely calcified lymph nodes in the right hilum. Lateral X-ray films did not localize the lesion.

The patient had lived in, and had not traveled more than 50 miles beyond the Washington, D. C. Metropolitan Area for the past 3 years. Previously he had traveled extensively through Southern Virginia, the Mississippi and Ohio River basins and 3 years previously had lived in Southern California near San Diego. He denied any known contact with persons who had tuberculosis. He had smoked approximately 40 cigarettes daily for several years. Physical examination was entirely within the limits of normal. Specifically, there was no fever, the lungs were clear to percussion and auscultation, there was no palpable lymphadenopathy, the liver and spleen were palpably normal, and the skin was clear.

Significant laboratory data upon admission to the hospital revealed a hematocrit of 40 volumes per cent and a hemoglobin of 13 Gm. per 100 ml. The white blood cell count was 9,810, and the differential count was normal with 2 per cent eosinophils. Repeated erythrocyte sedimentation rates were 8, 7 and 9 mm. Urinalysis, blood urea nitrogen, alkaline phosphatase, bilirubin, cephalin flocculation, thymol turbidity, and serum proteins were all normal. By paper electrophoresis the serum protein pattern was normal. A skin test with 5 test units of PPD-S tuberculin antigen was strongly positive (18 mm. induration). Skin tests were also positive (to lesser degree) with antigen from several atypical strains of mycobacteria (PPD-B, PPD-F, PPD-Bridge, PPD-Avian, and PPD-442). Skin-testing with histoplasmin (1:100) produced a 20 mm. induration at the end of 48 hours. Skin tests were negative, however, with coccidioidin (1:1,000), coccidioidin (1:100), and blastomycin (1:100) antigens. The patient's serum was nonreactive in the complement fixation tests with whole-yeast phase histoplasmin and mycelial phase histoplasmin, blastomycin, and coccidioidin. The latex agglutination with histoplasmin was also negative. Six induced sputa were negative on direct smear for *M. tuberculosis* and for fungi. The subsequent cultures were also reported as negative. Three sputa were examined by cytologic technique; they all showed Class I "negative for malignancy" cells. A chest X-ray film taken on March 27, 1962 was unchanged from that of February 19. X-ray films of the abdomen did not demonstrate splenic or hepatic calcification.

While hospitalized the patient remained afebrile and asymptomatic. Bronchoscopic examination was normal, and post-bronchoscopic sputa were culturally sterile for *M. tuberculosis* and fungi. A biopsy of lymph nodes from the right supraclavicular fat pad demonstrated normal lymph-node architecture.

By indirect studies the diagnosis had not been established. The patient was placed on antituberculosis chemotherapy (isoniazid 100 mg. 3 times daily and para-aminosalicylic acid, 4 Gm. 3 times daily) 6 days after admission to the hospital. Chest X-ray examination, repeated on April 18, 1962 (figure 1-B), revealed no interval change. Planograms through the involved area of lung failed to add any diagnostic

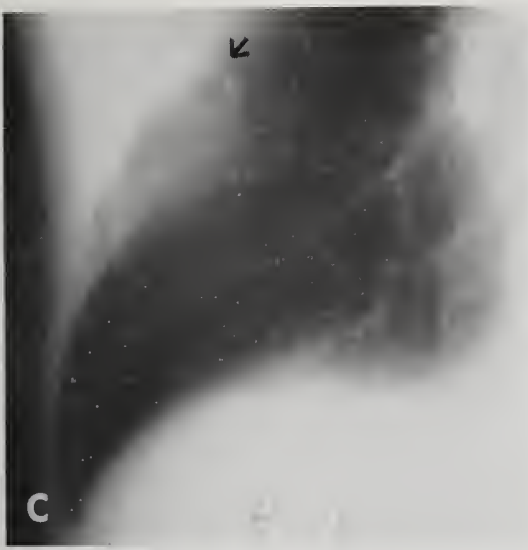

**FIG. 1-C. Case 1. Planogram showing noncalcified cavitary lesion, April 18, 1962.**

information (figure 1-C). No calcification was seen in the wall of the cavity. After 3 weeks of antituberculous chemotherapy it was elected to resect the lesion. At surgery on April 25, 1962 the lesion was found to be immediately subpleural in the superior segment of the right lower lobe. Several calcified lymph nodes were found in the right hilum. No satellite lesions were identified. A wedge resection of the lesion was performed. Frozen section was reported as showing a benign process. Consequently the wound was closed. The patient made an uneventful recovery.

The lesion that was removed was divided into 2 parts. One portion was cultured for *M. tuberculosis*, fungi, and bacterial pathogens; the cultures were sterile. The other portion was processed for pathologic examination. The pleura immediately over the cystic cavity was thickened and opacified. The cyst wall was approximately 1.5 mm. thick, and the cyst was empty except for a small amount of tan caseous material. Microscopically the cavity had a dense fibrous tissue wall that was infiltrated with numerous chronic inflammatory cells, most of which were lymphocytes. Occasional foci in the wall demonstrated nodules which had a necrotic eosinophilic center and were surrounded peripherally by more fibrous tissue. Occasional giant cells were identified, but they were rare. Epithelioid cells forming discrete tubercules were not a prominent feature, but there was extensive fibrosis. Special stains for fungi and acid-fast organisms were performed. No acid-fast organisms were identified, but organisms histologically identical to *Histoplasma capsulatum* were identified.

**Case 2.** R.K., a 66-year-old white male physician, was referred to the Georgetown University Medical Center for evaluation on July 9, 1962 because of persistent weight loss, progressive fatigue, and an abnormal chest X-ray film.

History revealed that the patient had had the onset of fever, productive cough, and anorexia on June 29, 1962 which led to a hospital admission in Dayton, Ohio. At that time a history of a 15-pound weight loss was obtained. A diagnosis of bronchitis was made, and the patient was discharged after 3 days. Because of persistent symptoms he was admitted to Georgetown Hospital on July 9. His cough had subsided, but he had remained weak and anorexic.

The patient had been admitted to Georgetown Medical Center in May of 1962 for evaluation of urinary frequency and nocturia. A chest X-ray film at that time had been within normal limits. A skin test with PPD (intermediate) had been positive, and with histoplasmin (1:100) negative. A diagnosis of cystitis due to mild bladder-neck obstruction was established and treatment instituted.

Physical examination revealed a well-developed white man with evidence of recent weight loss. Vital signs were within normal limits. There was no palpable lymphadenopathy. The chest was clear to percussion and auscultation. Cardiac examination was within normal limits. The liver span was modestly increased to 12 cm. The spleen was not palpable. The remainder of the physical examination, including a detailed funduscopic evaluation, was negative.

The hematocrit was 44 per cent, and the white blood cell count was 9,400 per cu. mm. with a normal differential. The blood urea nitrogen was 19 mg. and the fasting blood sugar 94 mg. The urinalysis was unremarkable. The bromsulfalein retention was 6 per cent in 45 minutes, the bilirubin was 0.5 mg. total, the SGOT 20 units, and the alkaline phosphatase 5.9 King-Armstrong units. Lumbar puncture revealed a normal pressure and no abnormality of the cerebrospinal fluid with respect to protein, sugar, or cells. A chest X-ray film disclosed multiple nodular lesions scattered throughout both lung fields (figure 2-B).

The initial diagnostic impression was that the patient had a metastatic neoplastic process involving the lungs.

The patient's first hospital week was marked by a low-grade fever to 100.8°F rectally and a 5-pound weight loss, with continued lassitude and anorexia.

Skin tests now revealed a positive reaction to PPD intermediate, a positive reaction to histoplasmin (1:100), and negative responses to blastomycin and coccidioidin (both 1:100). Thus, the histoplasmin skin test apparently had become positive in the interval since May, 1962. A liver biopsy carried out on the eighth hospital day disclosed several areas of caseating granulomata. Special stains failed to reveal acid-fast or fungal organisms.

During the second hospital week the patient became afebrile and started to regain appetite and weight. A chest X-ray film taken in Ohio approximately 1 week before his admission to Georgetown (figure 2-A) was received and disclosed that multiple infiltrates in

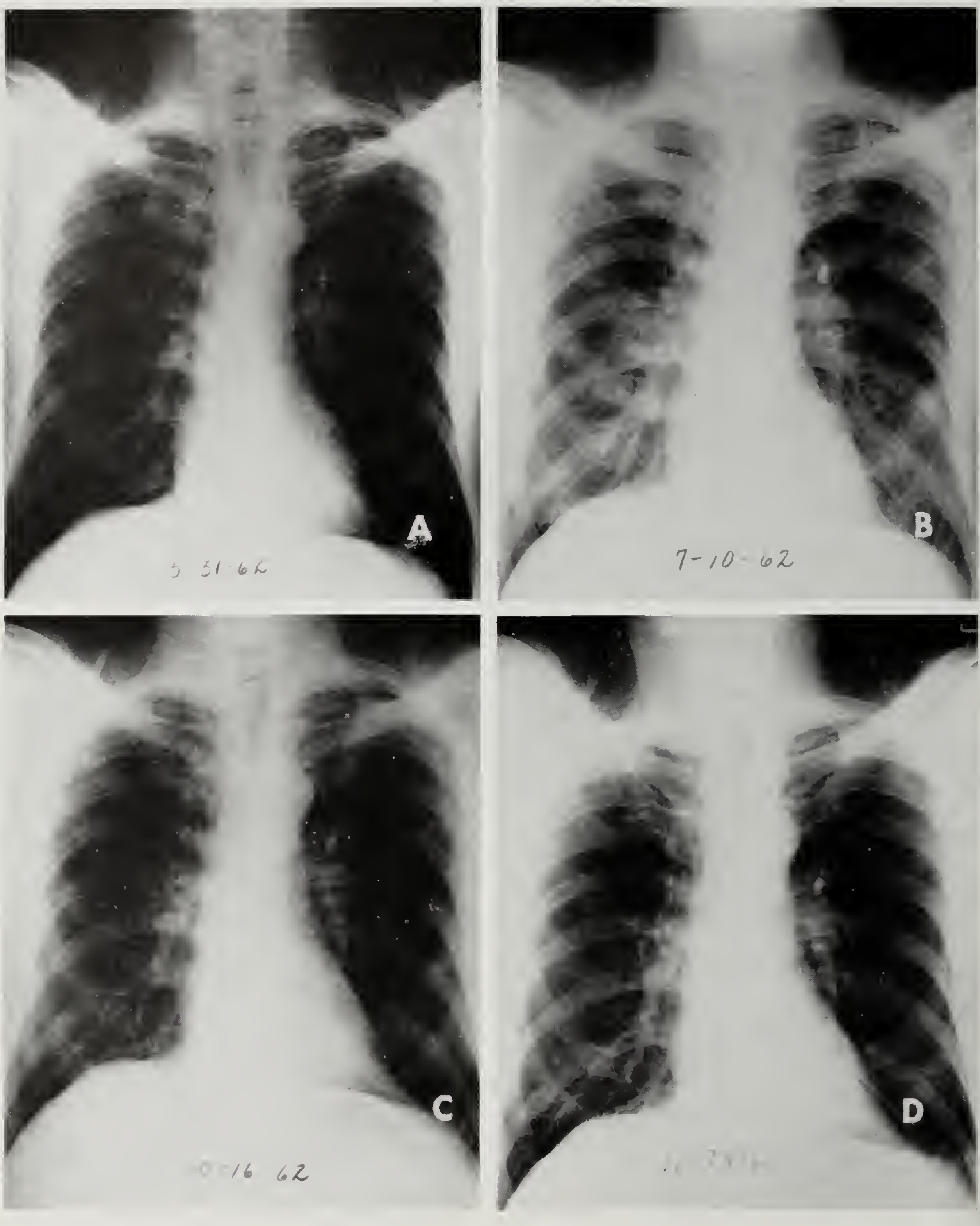

**FIG. 2.** Case 2. A. Discrete multiple infiltrates in both lung fields, May 31, 1962. B. Multiple nodular infiltrates in both lung fields, July 10, 1962. C and D. Progressive radiographic clearing (films of October 16 and December 24, 1962).

both lung fields had been present at that time, though less discrete and smaller than on the Georgetown admission X-ray film. An X-ray film 10 days after admission disclosed that several of the nodular infiltrates had decreased slightly in size and had become more radiodense and that no new nodules had appeared.

On the twelfth hospital day serologic tests drawn prior to skin-testing revealed a 1:64 whole-yeast phase and a negative histoplasmin complement fixa-

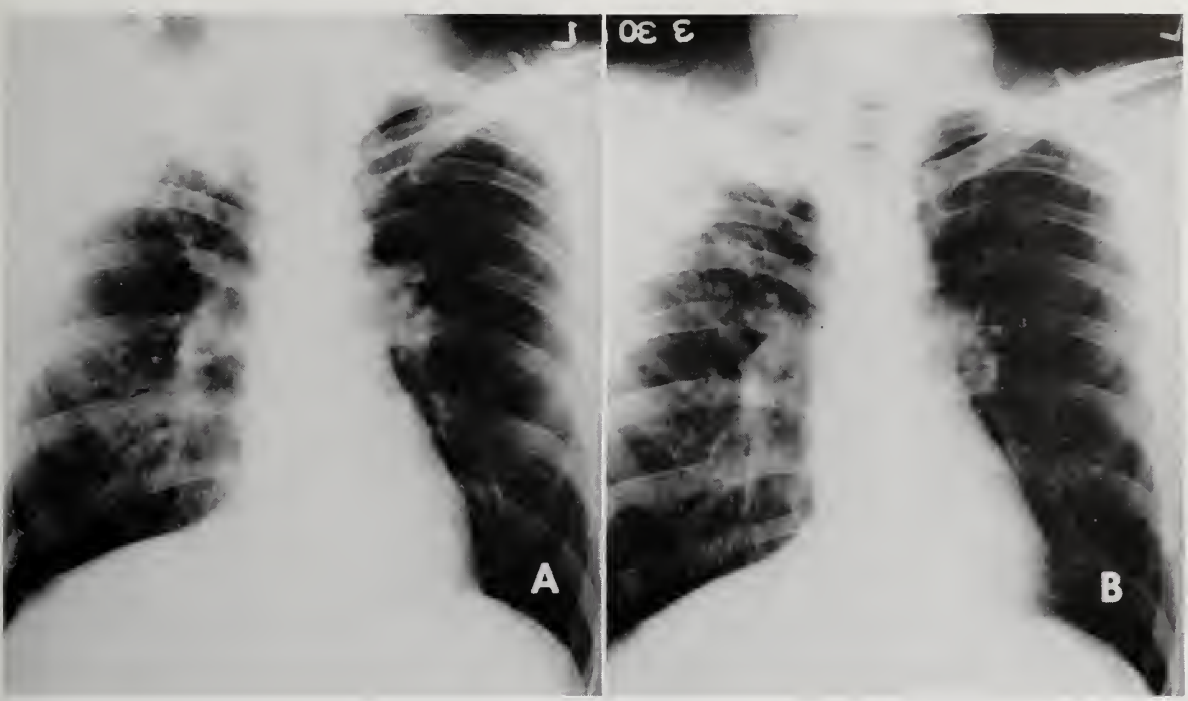

**FIG. 3. Case 3. Admission film demonstrating fibrocavitary lesion in right upper lobe, February 1964. B. Slight increase in right upper lobe lesion, March 30, 1964.**

tion titer; a 1:16 latex agglutination test with histoplasmin; a 1:32 yeast-phase complement fixation test for blastomycosis; and a negative coccidioidin complement fixation.

The diagnosis of acute inhalation histoplasmosis with dissemination to the liver was established. Therapy was withheld because the patient appeared to be improving clinically. Steady radiographic and clinical improvement characterized the remainder of his hospital course. Sputum, bone-marrow, urine and cerebrospinal fluid cultures were all sterile.

The patient was discharged to follow-up on July 26, 1962. Since that time he has remained clinically well. The behavior of his serologic tests is depicted in table 1-A. Progressive radiographic clearing has occurred (figures 2-C and 2-D).

**Case 3.** J.M., a 32-year-old bus driver, was admitted to Georgetown University Medical Center on February 3 because of a routine employment chest X-ray film reported as "suggestive of tuberculosis." He had had a "flu-like" illness in October, 1963, accompanied by pleuritic right anterior chest pain and a temperature to 101°F. He recovered in approximately 6 days with no specific treatment by his private physician. For the next 2 months he had a moderately productive cough and occasional night sweats and had lost approximately 10 pounds. By January, 1964 he had become asymptomatic. However, an annual chest X-ray film in February, 1964 disclosed a lesion in the right upper lobe, and the patient was referred for evaluation.

Examination was unremarkable except for a few post-tussic rales over the right anterior side of the chest. The hematocrit was 47 per cent, the white blood cell count 12,000 with a normal differential, and the erythrocyte sedimentation rate was 35 mm. per hour. A urinalysis was unremarkable, as were bromsulfalein test, alkaline phosphatase, SGOT, blood urea nitrogen, and fasting blood sugar.

A chest X-ray film (figure 3-A) revealed a fibrocavitary lesion in the right upper lobe.

**TABLE 1: Behavior of Serologic Tests in Two Cases**

| | Histo(W-Y)* | Histo(M)* | Histo(L)* | Blasto* | Cocci* |
|---|---|---|---|---|---|
| A. | R.K. | | | | |
| 7/10/62 | 1:64 | 0 | 1:16 | 1:32 | 0 |
| 7/26/62 | 1:32 | 0 | 1:16 | 1:32 | 0 |
| 8/10/62 | 1:32 | 1:8 | 1:8 | 1:16 | 0 |
| 8/24/62 | 1:32 | 1:16 | 0 | 1:32 | 0 |
| 9/7/62 | 1:16 | 1:8 | 0 | 1:16 | 0 |
| 10/16/62 | 1:8 | 1:8 | 0 | 1:8 | 0 |
| B. | J.M. | | | | |
| 2/3/64 | 1:32 | 0 | 0 | 0 | 0 |
| 2/24/64 | 1:32 | 0 | 0 | 0 | 0 |
| 3/9/64 | 1:32 | 0 | 0 | 0 | 0 |
| 3/30/64 | 1:32 | 0 | 0 | 0 | 0 |

* W-Y and M represent whole-yeast phase and mycelial phase (histoplasmin) complement-fixation titers respectively. L represents histoplasmin latex agglutination test. "Blasto" and "Cocci" represent complement-fixation tests with whole-yeast phase blastomycin and coccidioidin respectively.

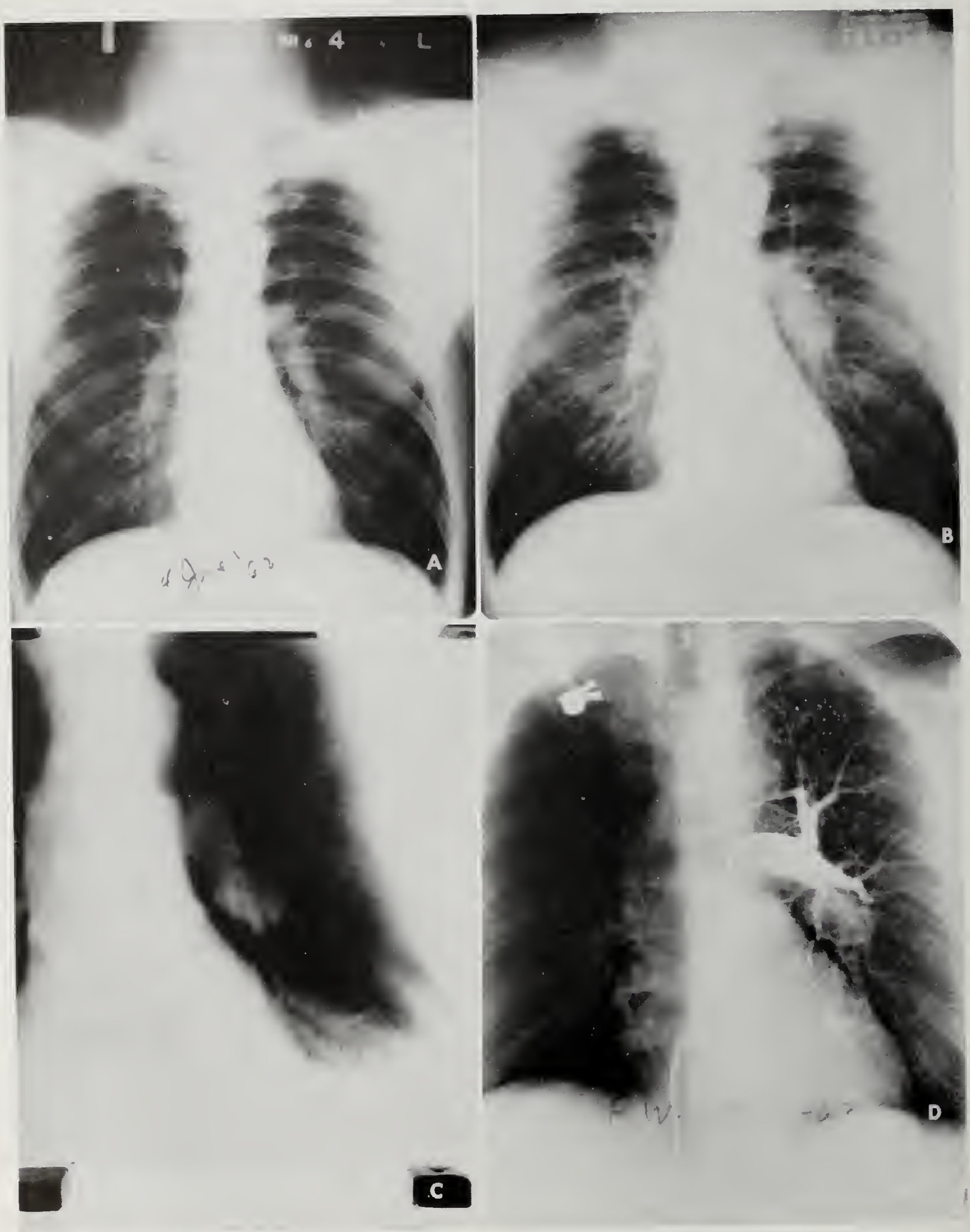

FIG. 4. Case 4. A. Normal film 1 year before admission. B. Admission film of February 14, 1963 disclosing left hilar enlargement. C. Tomogram demonstrating extent of left hilar lesion. D. Pulmonary angiogram demonstrating mass distinct from pulmonary artery.

Additional history was obtained shortly after admission. The patient had moved to a farm in Loudoun County, Virginia, several weeks before his illness of October, 1963. On at least 3 occasions prior to his illness he had cleaned and swept a dusty chicken-coop which he used thereafter as a workshop. Neither his wife nor his 2 young children had assisted in the cleaning, and none had visited the workshop for more than a "few minutes."

Two skin tests with PPD (intermediate) antigen

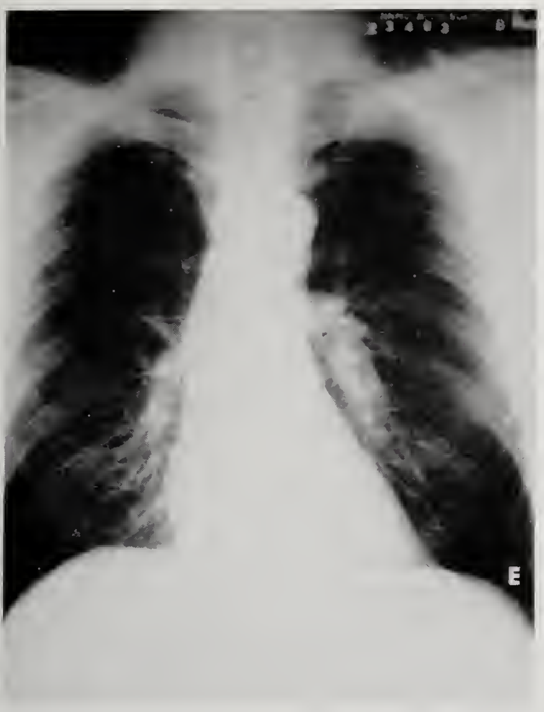

**FIG. 4-E. Case 4. Follow-up film on April 29, 1964 showing regression of left hilar enlargement.**

were negative, the histoplasmin skin test was strongly positive, and blastomycin and coccidioidin skin tests were negative. Lumbar puncture revealed normal pressure and cerebrospinal fluid.

Serologic tests drawn the day of admission revealed a 1:32 complement fixation titer with whole yeast phase histoplasmin, but negative complement fixation titers for histoplasmin, coccidioidin, whole-yeast phase blastomycin and latex agglutination with histoplasmin.

The patient was bronchoscoped on the third hospital day. The right upper lobe orifice was slightly reddened and a small amount of mucopurulent material was aspirated from this orifice.

The patient was afebrile throughout his hospital stay, and his weight was stable. He was discharged to close follow-up on February 10, 1964 with the diagnosis of fibrocavitary histoplasmosis, right upper lobe.

Following discharge, cultures of sputum, urine, bone-marrow aspirate, and bronchoscopic washings failed to grow *H. capsulatum* or other pathogens. The patient remained asymptomatic and gained approximately 10 pounds over the next 2 months. Behavior of his serologic tests is indicated in table 1-B. A chest X-ray film on March 30 disclosed a slight increase in the right upper lobe infiltrate (figure 3-B). At that time, because of the progression of his fibrocavitary lesion and unchanging serologic status, arrangements were made for readmission for treatment with amphotericin B and possible surgical resection.

**Case 4.** F.W., a 50-year-old Caucasian man, was admitted to the U.S. Naval Hospital, Bethesda, Maryland, for an elective otologic surgical procedure. The history, other than for minimal deafness, was entirely negative. He denied cough, sputum production, hemoptysis, weight loss, myalgia, or malaise. He had lived in the Metropolitan Washington Area his entire life. He had not been in dusty enviornments or in rural areas in several years. A chest X-ray film taken 1 year previously was normal (figure 4-A).

Physical examination was normal. There was no hepatomegaly, splenomegaly, or lymphadenopathy.

Significant laboratory data revealed a normal complete blood count and no eosinophilia. The urinalysis, serum alkaline phosphatase, liver function studies, and serum protein electrophoresis were normal. The erythrocyte sedimentation rate was 9 mm. in 1 hour. Chest X-ray examination demonstrated a left hilar mass (figure 4-B). Tomography and pulmonary angiography showed the lesion was not vascular in nature (figures 4-C and D).

Bronchoscopy and left-sided scalene lymph node biopsy were normal. Smears and ultimate cultures of induced sputums, early morning gastric aspirants, and first-voided urine were normal. Skin tests demonstrated a 20 mm. induration to PPD-S (5 test units), a 13 mm. induration to PPD-B (5 test units), and a 15 mm. induration to histoplasmin (1:100), but were nonreactive to blastomycin (1:100) and coccidioidin (1:100). Fungal serologic tests, drawn prior to skin-testing, demonstrated 1:256 whole yeast phase histoplasmin antigen complement fixation titer. The serum was nonreactive in complement fixation titer for histoplasmin, blastomycin and coccidioidin and for latex agglutination test with histoplasmin.

Because of these serologic data, it was elected to cancel the previously scheduled thoracotomy. The patient has done well and remains asymptomatic. Behavior of his serologic tests is indicated in table 2. One year later the chest X-ray film demonstrated regression in size and calcification of the left hilar lymph node (figure 4-E).

**TABLE 2: Behavior of Serologic Tests in Case 4**

| | Histo(W-Y)* | Histo(M)* | Histo(L)* | Blasto* | Cocci* |
|---|---|---|---|---|---|
| F.W. | | | | | |
| 2/18/63 | 1:256 | 0 | 0 | 0 | 0 |
| 3/4/63 | 1:64 | 0 | 0 | 0 | 0 |
| 4/20/63 | 1:8 | 0 | 0 | 0 | 0 |
| 4/10/64 | 0 | 0 | 0 | 0 | 0 |

* W-Y and M represent whole-yeast phase and mycelial phase (histoplasmin) complement-fixation titers respectively. L represents histoplasmin latex agglutination test. "Blasto" and "Cocci" represent complement-fixation tests with whole-yeast phase blastomycin and coccidioidin respectively.

## Discussion

These 4 cases describe but a few of the forms in which histoplasmosis occurs. It is apparent that histoplasmosis can assume many radiographic and clinical disguises and, therefore, demands diagnostic consideration in patients with a wide variety of pulmonary lesions.

Experience accumulated during the past 15 years has provided a rather coherent picture of the pathogenesis of histoplasmosis.[8] In the adult, inhalation of soil or dust containing *H. capsulatum* initiates the infection. In those areas of the lung in which the organism lodges a small area of pneumonitis develops which regularly proceeds to central caseation. Regional lymph nodes become involved, and the primary complex is formed. In man, early hematogenous spread is common, especially to the spleen. Healing of the primary focus occurs by encapsulation, and ultimate calcification is the rule.[8] The clinical counterpart of this "acute inhalation" form of the disease was presented by case 2 in which multiple pulmonary lesions and hepatic involvement were evident. The relatively mild clinical course despite extensive radiographic involvement is well demonstrated by this patient. Indeed, it is easy to understand why numerous patients have extensive pulmonary (and splenic) calcification without recalling a significant respiratory or systemic illness. Had this patient not had an X-ray film taken during the acute phase of his illness, it is likely that his symptoms would have been attributed to other causes and would not have been recalled several years later. On the other hand, the patient's clinical picture did suggest metastatic malignant disease as a distinct possibility. This should be recalled when decisions are being made as to the vigor of diagnostic approach in patients with "obvious metastatic disease." This patient did recall driving through a "dust storm" in a farming area of Ohio (an endemic area) 2 weeks prior to the onset of his illness, providing an adequate source for his acute inhalation of *H. capsulatum.*

Case 3 is a rather characteristic instance of chronic cavitary histoplasmosis. The clinical and radiographic picture emphasizes how easily such patients can be misdiagnosed as having tuberculosis, a point originally emphasized by Furcolow and Brasher.[9] Increasing awareness has proved that this is a rather common form of the disease,[1-5, 7-19] even though only 5 such cases had been recognized prior to 1954.[20] The chronic cavitary form of the disease has been observed exclusively in adults, is usually apical or subapical and bilateral, and most often shows multiple, thick-walled cavities. It is usually associated with symptoms and implies a poor prognosis unless treated.[2, 9, 11, 14] Chronic cavitary histoplasmosis may be a result of endogenous bronchogenic or hematogenous spread, or may represent exogenous reinfection at a time when resistance resulting from childhood infection has waned.[8] Our patient most likely falls into the second category. Hemoptysis is rare despite the extensive destruction often encountered.[17, 19] Pleurisy, which this patient had at the outset, is also surprisingly infrequent[6] in relation to the marked pathologic involvement of the visceral pleura which occurs.[13, 21]

Case 1 was most unusual for histoplasmosis, with a solitary, thin-walled, lower-lobe cavity. Although multiple thick-walled cavities in the upper lobes are not uncommon, a search of the literature revealed only 5 instances of cavitary disease in other than the upper lobes.[2, 15, 17] Each of these cases had thick-walled cavities with appreciable parenchymal infiltration. Although thin-walled or cyst-like cavities have been mentioned by others,[9, 22] documentation has been offered in only 2 instances.[15, 19] In 1 case[15] a thin-walled cavity in 1 lung was observed which was surrounded by small satellite cavities and associated with multiple thick-walled cavities in the other apex. In the second case a single thin-walled cavity was observed in the left upper lobe by Curry and Wier.[19] In this patient a soft infiltrate in the apex was originally observed. Fifteen days later a thin-walled cavity was the only residual visible. It is likely that this sequence is explained by parenchymal necrosis which involves a bronchus through which the necrotic material is expelled.[1, 13] We have observed an additional, unreported case in which a large, partially calcified lesion in the right middle lobe (stable for at least 5 years) was replaced by a thin-walled cavity. The sequence was observed in serial films, the patient having been asymptomatic throughout.

Case 4 with massive unilateral hilar enlargement without a radiographically demonstrable parenchymal lesion is the first such instance we have observed. No similar case has been reported in the literature. This case emphasizes the value of a thorough diagnostic approach, including consideration of mycotic infections, before diagnostic thoracotomy is carried out. Serologic tests in this patient eliminated the need for diagnostic thoracotomy and radically altered what appeared to be an ominous clinical picture. The patient serves to enforce the growing appreciation of the fact that histoplasmosis can mimic pulmonary disease ranging from "atypical pneumonia" to neoplasm.

The diagnosis of histoplasmosis is approached in the usual manner: skin-testing, serologic tests, attempts to culture the organism from sputum and other sources, and examination of appropriately-stained biopsy material. Cultural isolation of the organism has proven difficult. For example, in 63 pathologic specimens in which the organism was unequivocally identified in stained sections only 3 yielded positive cultures.[19] Curry and Wier[19] suggest that factors responsible for the cultural failures include delay in inoculating the sample upon culture media and an alteration in the organisms themselves such that they are either dead or in a state of decreased metabolic activity which prevents their multiplication in ordinary culture media. Even in acute histoplasmosis culture directly from resected specimens frequently fails to prove the diagnosis.[10] The histoplasmin skin test, while not a definitive diagnostic tool, is usually a reliable clue to the diagnosis unless the patient is severely ill or in the incubation stage of the disease.[3] However, in chronic or healed infections negative skin tests have been observed in patients with histoplasmosis proven by culture or tissue examination.[2, 14, 17, 18] Therefore, a negative skin test does not rule out the diagnosis.

Serologic tests, as indicated in this report, are quite helpful. They are not without diagnostic pitfalls, however. Negative serologic studies do not exclude the diagnosis totally,[2, 3, 14, 17] although they are rarely negative during active infection. Serologic negativity is the rule in healed histoplasmosis, however. The effect of skin-testing in eliciting a rise in titer in patients with prior infection also must be guarded against by taking serologic samples prior to skin-testing.

Treatment of histoplasmosis is rarely necessary, since the usual course is one of mild symptoms with rather prompt spontaneous clinical recovery. Treatment is required when evidence of dissemination occurs or when chronic, progressive cavitary disease of the lungs is present. Dissemination warranting treatment is usually signaled by clinical deterioration and a rising serologic titer. In such cases prompt institution of therapy with amphotericin B is indicated. Such therapy is not undertaken lightly, however, or without sufficient indication. The toxicity of the agent is generally appreciated, and, as Yates et al[12] have stated: "Amphotericin B is primarily suppressive rather than fungicidal in the great majority of cases and it necessitates long-term intravenous therapy not without frequent and severe side-effects."

Surgical resection is the alternative therapeutic approach. Obviously, this is feasible only in localized forms of the disease, particularly with chronic fibrocavitary lesions.[4, 17, 19] A large number of successful surgical resections have been reported.[4, 11, 17, 19] This reported experience has indicated that resection of pulmonary lesions can be carried out with low mortality and low morbidity and without spread of the disease as indicated by postoperative serologic studies, X-ray examinations, and clinical observations.

## Summary

Histoplasmosis may present itself to the physician in a variety of clinical and radiographic disguises. Four patients have been described who illustrate this point. Current concepts of the pathogenesis, diagnosis and treatment of infection with *H. capsulatum* have been reviewed. It is concluded that histoplasmosis should be considered in the differential diagnosis of patients with a wide variety of pulmonary lesions ranging from chronic fibrocavitary disease to hilar adenopathy.

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# Mediastinal Shadows in Infants and Children

**CAPTAIN J. EDWARD McCLENATHAN, MC, USN**

*Chief, Thoracic and Cardiovascular Surgery, United States Naval Hospital, Bethesda, Maryland*

**LT. COMMANDER LEWIS P. SCOTT III, MC, USN**

*Assistant Chief, Pediatric Service, United States Naval Hospital*

**LT. COMMANDER SHERMAN GARRISON, MC, USN**

*Department of Radiology, United States Naval Hospital*

**LT. COMMANDER VERNON N. HOUK, MC, USN**

*Head, Chest and Contagion Branch, Department of Medicine, United States Nava Hospital*

THE STUDY OF LESIONS of the mediastinum embraces one of the most interesting fields of medical endeavor. It requires close coöperation between the referring physician, the radiologist, and the surgeon. Mediastinal lesions, by virtue of their diverse origins and protean clinical manifestations, have long induced writers to categorize them according to etiology, location, and symptoms. Review of statistical reports[1, 2] indicates that the age of the patient makes a great difference in etiology and prognosis. This report will review a selected series of mediastinal lesions in children under the age of 10 years, all of whom were surgically treated. It will emphasize the nonspecificity of X-ray findings prior to definitive diagnosis and surgical treatment.

Children usually come to the physician with symptoms of upper respiratory origin, and these are often unrelated to the lesion. Wheezing due to partial bronchial obstruction, frequent nonproductive cough, and dysphagia due to partial esophageal obstruction are more specific complaints dictating the need for X-ray study.

Clinical examination of the child or infant with this problem is more often than not unrevealing. Unless large size has been attained by the lesion it will escape clinical detection. One may note tracheal, bronchial, or esophageal deviation by endoscopy, and shift of the heart may be apparent. Involvement of sympathetic nerves or ganglia may produce Horner's syndrome.

The nature of these lesions may be suspected from their X-ray location, configuration and density (figure 1). No delay should be countenanced in the medical work-up of these children and one should not hesitate to recommend endoscopy and surgical exploration as the major diagnostic and therapeutic measures. An orderly but complete evaluation should include, first, complete history, physical examination, routine blood study and urinalysis; second, posteroanterior and lateral chest X-ray examination followed by fluoroscopy, barium swallow and angiography if believed indicated; and, third, endoscopy, regional lymph-node biopsy, bone-marrow study, and surgical exploration.

## Examples of Various Lesions with Brief Descriptions

*Neurogenic* (6 cases). Neuroblastomas (figure 2-B) usually occur in the posterior superior mediastinum and ganglioneuromas anywhere along the sympathetic chain. Neurofibromas may arise from the intercostal, vagus, or phrenic nerves. All these are of "solid" density, rather smooth, and of rounded outline and seldom displace other structures. Three children in this series with neuroblastoma had Horner's syndrome. Three others had upper respiratory symptoms. One of the latter had a malignant ganglioneuroma.

*Bronchogenic cyst* (4 cases). These cystic structures (figure 3-A) occur near the hilus of the lung or adjacent to the cardiac silhouette.[3] Of smooth bulging outline they may be less dense than solid or cellular tumors. Occasionally, they will change shape with a change in the patient's position. Three of the children in this series had severe upper respiratory symptoms which may have been due to the cysts which were densely adherent to, and pressing upon large bronchi. The other child was being studied for a heart murmur. Trossman[4] has reported an unusual case of bronchogenic cyst in which symptoms of expiratory stridor were produced only in the prone "push-up" position. This was due to a large retrotracheal cyst. Opsahl and Berman[5] point out that these cysts may not be demonstrable radiologically.

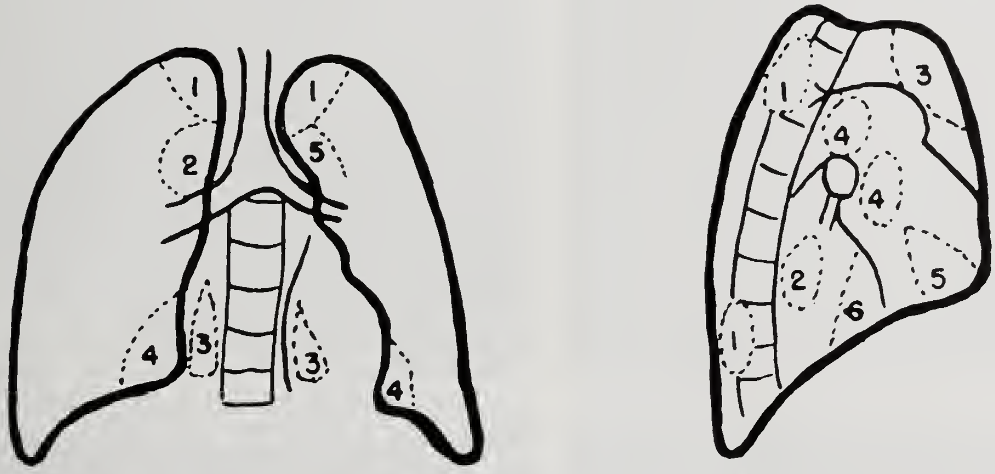

**FIG. 1. Diagrammatic X-ray location of mediastinal shadows**

A. POSTERIOR ANTERIOR (P-A)
1. Anomalous great vessels
   Neurogenic tumor
   Thyroid, lymphangioma
2. Node, azygous
   Azygous vein
   Right aortic arch
   Bronchogenic cyst
   Pleuropericardial cyst
   Esophageal duplication
   A-V malformation
3. Neurogenic tumor
   Sequestration
4. Pleuropericardial cyst
5. Anomalous pulmonary venous return
   Persistent left superior vena cava
   Pleuropericardial cyst

B. LATERAL
1. Neurogenic tumor
2. Duplication
3. Thymus, thymic tumor
   Thyroid, teratoma
4. Node
5. Pleuropericardial cyst
6. Sequestration

*Thymoma and thymic cyst* (2 cases). These lesions are anterior-superior mediastinal lesions, although they may extend well down along the pericardium (figure 2-D). What constitutes a pathologic thymic X-ray shadow is not well resolved at present. The benign cystic lesions are often angular in shape, while the malignant tumors may be rounded. Perhaps one must rely upon the X-ray shadow together with the clinical symptoms to decide. It is probably pathologic in the infant or child with respiratory distress or acute, recurrent upper respiratory symptoms and X-ray evidence of a thymus not regressing with cortisone therapy. They must be differentiated from dermoid cysts and teratomas since the latter also arise in the anterior mediastinum.

*Vascular abnormalities* (3 cases). Many of these which produce abnormal mediastinal shadows are not surgical lesions. Persistent left superior vena cava noted by a rather straight shadow in the left upper mediastinum and a right aortic arch and prominent azygos vein in the right upper mediastinum constitute the commonest abnormal vascular shadows. These, of course, are not surgical lesions per se. If a vascular ring from a right or double aortic arch produces either respiratory distress or dysphagia, it then becomes surgical. The cavernous hemangioma of benign nature (figure 2-A) may arise anywhere in the mediastinum and is indistinguishable from any other solid tumor. Arteriovenous fistula (figure 3-C) may arise in the intercostal-azygous system and produce irregular shadows in the posterior mediastinum. Aneurysms of the great vessels may be differentiated by angiograms also.

*Hemangiolymphangioma* (1 case). Cervical cystic hygromas (figure 3-D) often have an ex-

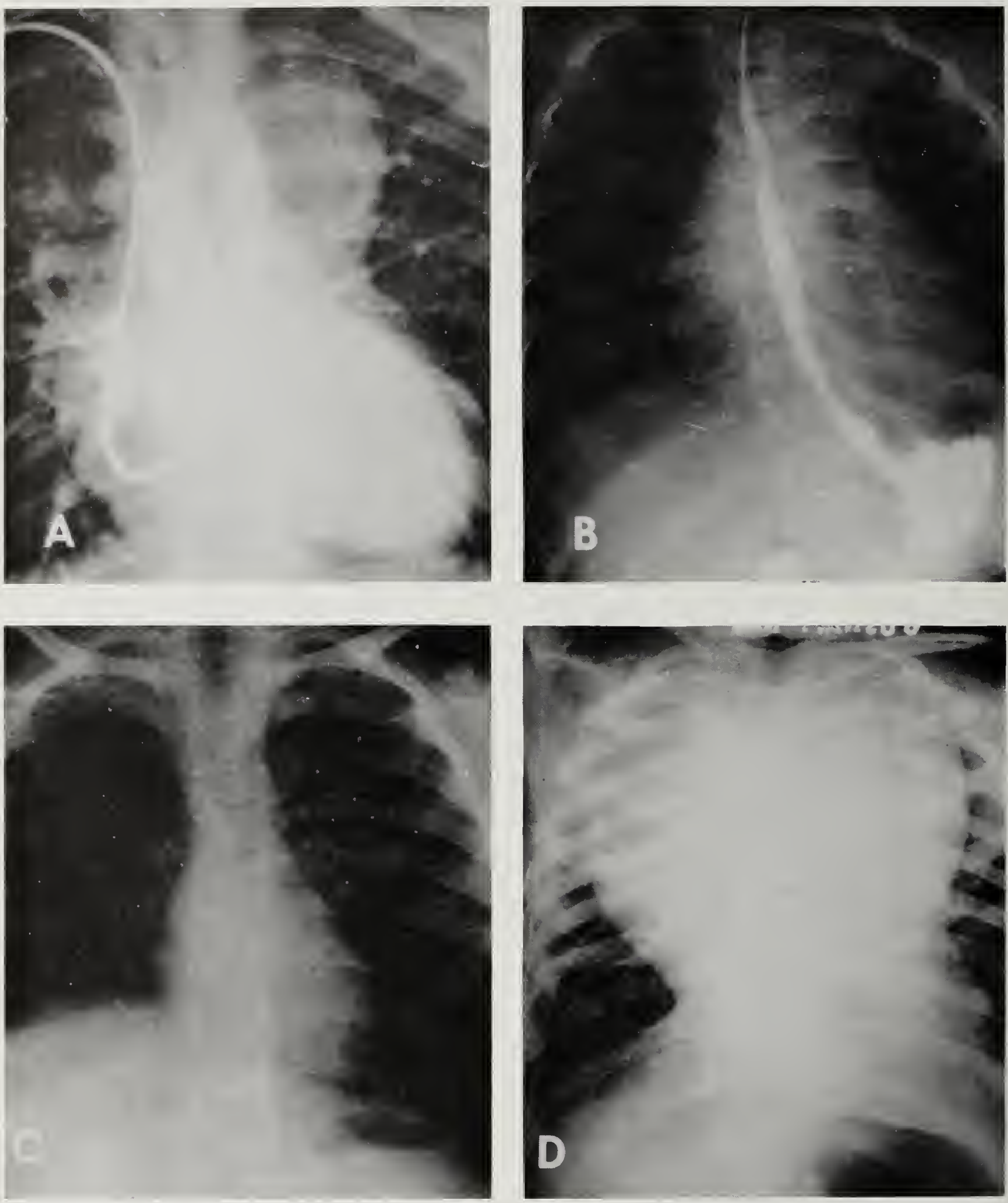

**FIG. 2.** A—Hemangio-endothelioma; B—neuroblastoma; C—osteochondroma; D—malignant thymoma.

tensive mediastinal component producing a lobulated outline in the superior mediastinum. The routine postero-anterior chest X-ray film may show the lesion to extend to the level of the aortic arch or the fourth thoracic vertebra. Most can be removed by the cervical and supraclavicular approach, but occasionally thoracotomy may be necessary for complete removal.

*Duplication cysts of foregut* (2 cases). This lesion (figure 3-B) is noted in the posterior-inferior mediastinum in proximity to the esophagus. Often a smoothly outlined and elongated retrocardiac shadow, it may be also present on the right at any level. Those arising beneath the diaphragm commonly ascend on the right aspect of the mediastinum and may attain

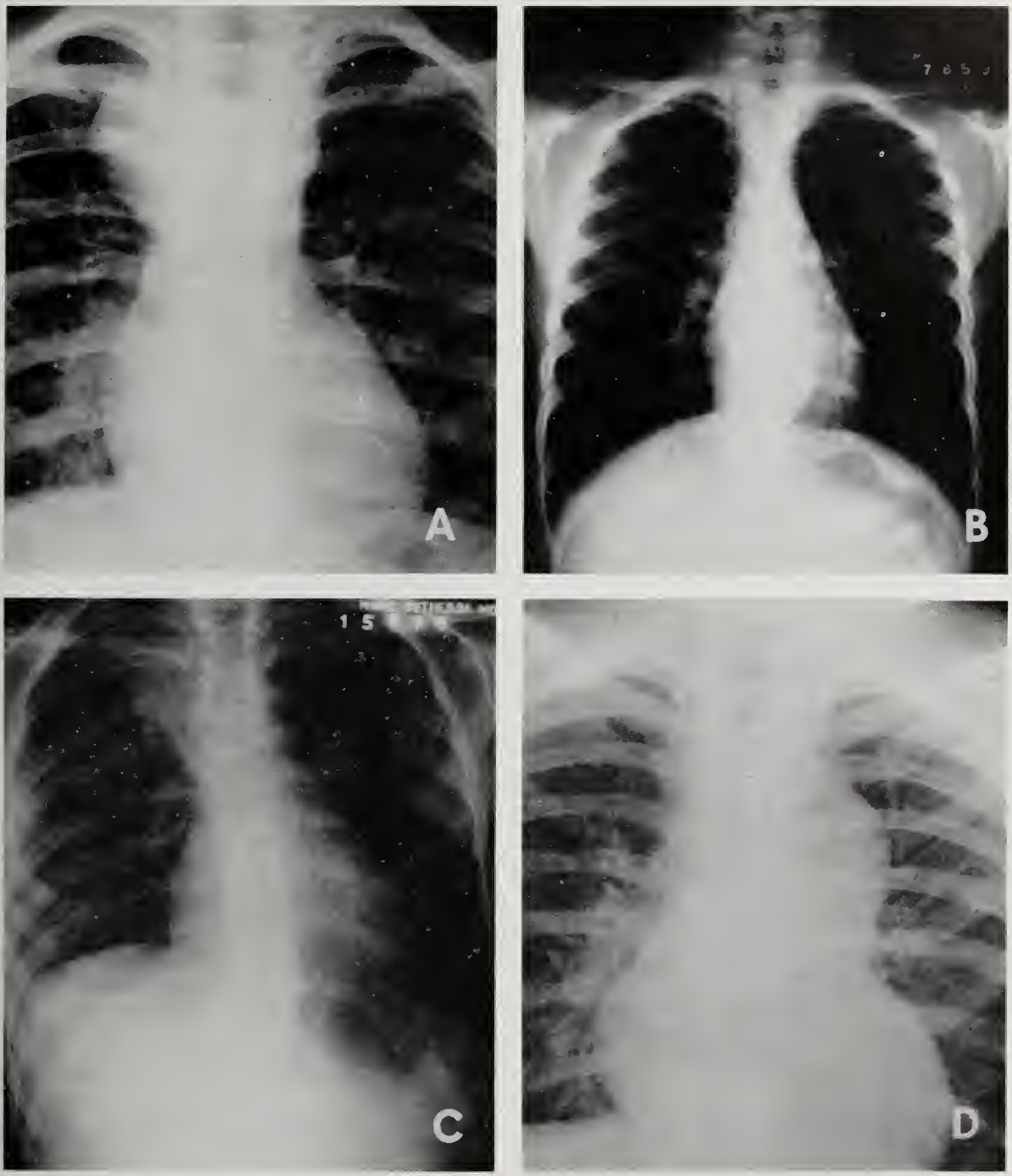

**FIG. 3.** A—Bronchogenic cyst; B—foregut duplication; C—arteriovenous fistula (intercostal-azygous); D—hemangiolymphangioma.

large size before producing symptoms. These must be differentiated from achalasia of the esophagus and diaphragmatic hernias.

*Osteogenic tumors* (1 case). Lesions arising in the vertebrae and adjacent aspects of the ribs may show as mediastinal shadows (figure 2-C). Sarcomas and other malignant lesions are often destructive, while osteochondromas proliferate as smooth lesions which erode by pressure necrosis.

## Discussion

The 19 cases presented herein are selected from a series of 39 children with mediastinal abnormalities or suggestions of mediastinal tumors noted on chest X-ray examination seen in a 7-year period. The diagnosis in over 50 per cent of the cases was established by (a) refined X-ray techniques, (b) cardiac catheterization and cineangiocardiography, (c) peripheral lymph-node biopsy, or (d) bone-marrow aspiration. The 48 per cent (19 cases) requiring surgical exploration for both diagnosis and treatment include 2 unusual mediastinal lesions, a malignant thymoma in a 5-year-old boy and a cavernous hemangioma in a 6-year-old boy.

In this selected group of patients, 10 of the 19 explored had solid tumors, of which 7 were malignant. This is in consonance with the report of Ellis and DuShane,[2] who pointed out the higher incidence of malignancy in solid mediastinal tumors in children.

Radiographic evaluation is the major aid in differentiating these shadows, and special techniques include fluoroscopy, with or without barium swallow, lordotic and oblique views by X-ray films, laminograms, and cine-angiograms. It must be remembered that even with these refined techniques only a little over 50 per cent of the patients with abnormal mediastinal shadows can have the lesion correctly diagnosed prior to surgical exploration.

### Summary

Mediastinal shadows in children are rather nonspecific, although clinical impression based on location, outline, and density will often be correct. Careful work-up and special X-ray techniques left 48 per cent of this series which required surgical exploration for diagnosis.

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## 1964—An Epidemic Year for Rubella (German Measles)

The latest figures released by the National Disease and Therapeutic Index (N.D.T.I.), which is a nationwide survey of private medical practice, shows visits for German measles reached epidemic proportions in the first 6 months of 1964. N.D.T.I., which measures the number of patient-physician contacts involving various diagnoses, estimated physicians received over 1.8 million visits for rubella (German measles) since January of this year. This represents almost a 500 per cent increase over the same period last year.

Historically, the first half of the year accounts for the largest share of rubella visits. This can be clearly seen in the following table which shows a breakdown of visits for the years 1960 through June 1964.

**U. S. Patient Visits for Rubella (German Measles) by Calendar Quarter**

| | 1960 | 1961 | 1962 | 1963 | 1964 |
|---|---|---|---|---|---|
| Jan.–Mar. | 65 | 155 | 145 | 105 | 645 |
| Apr.–June | 215 | 220 | 215 | 220 | 1210 |
| July–Sept. | 135 | 80 | 75 | 165 | |
| Oct.–Dec. | 80 | 65 | 100 | 100 | |
| Annual Total | 495 | 520 | 535 | 590 | 1,855* |

* For 6 months only.

A regional break of N.D.T.I. information shows that 1964 rubella visits were higher than average in the East, particularly in the New England and Middle Atlantic states. The eastern half of the country usually accounts for 25 per cent of all visits to private practitioners; rubella visits showed 36 per cent in this region.

**Regional Visits for Rubella (German Measles)**

| | All Visits to Private Physicians Jan–June 1964 | July 1963–June 1964 |
|---|---|---|
| | Per cent | Per cent |
| East | 36 | 25 |
| Midwest | 20 | 29 |
| South | 28 | 28 |
| West | 16 | 18 |
| | 100 | 100 |

N.D.T.I. further reported that an age breakdown on German measles visits showed that the epidemic was confined almost entirely to children and teen-agers with only about $1/5$ of the visits being accounted for by adults. The sex breakdown for rubella was about average, with females accounting for approximately 60 per cent of the visits to private physicians.

**Ages of Patients with Rubella**

| Age | All Visits to Private Practitioners Jan–June 1964 | | July 1963–June 1964 | |
|---|---|---|---|---|
| | Per cent | | Per cent | |
| 0–9 | 61 | 82 | 15 | 25 |
| 10–19 | 21 | | 10 | |
| 20–39 | 12 | | 24 | |
| 40 and over | 6 | | 51 | |
| | 100 | | 100 | |

# Renovascular Hypertension

## Report of Ten Cases and Review of the Literature

**LIEUTENANT W. F. WARRENDER, MC, USN**
**LIEUTENANT D. O. CASTELL, MC, USN**
**LIEUTENANT R. C. KARLSBERG, MC, USNR***

*Medical Service, United States Naval Hospital, Bethesda, Maryland*

SINCE THE DEMONSTRATION by Goldblatt et al[1] in 1934 that hypertension could be produced experimentally by compromising renal artery blood flow to 1 or both kidneys, the full significance of a similar disorder in clinical medicine has been sought. It was subsequently demonstrated that hypertension so induced was completely reversible in animals with removal of the lesion if the contralateral kidney was normal.[2] This Goldblatt-type hypertension occurring in man could conceivably represent a correctible form of hypertension if accurately diagnosed in time. In spite of the fact that recent medical literature abounds with studies of this malady, variable and unpredictable responses to treatment offer overwhelming evidence that this problem is far from solved.

The mechanism by which elevated blood pressure results from compromise of renal arterial flow is apparently initiated by ischemia of the involved kidney. Many of the details of this mechanism have been elaborated in recent years. The juxtaglomerular cells located in the distal portion of the afferent arteriole to the glomerulus appear to represent the site of renin formation, with the granularity of these cells varying directly with the degree of ischemia. It is possible that decreased perfusion pressure, rather than ischemia per se, is the effective stimulus to renin production.[3]

Renin, once produced, initiates a series of reactions resulting in the production of angiotensin II. This compound appears to have a direct pressor effect and also a stimulating action on the adrenal cortex to secrete aldosterone, which potentiates the hypertensive effect through sodium and water retention.[4]

The etiologic possibilities invoking this form of hypertension are many and varied and range from arteriosclerotic plaques in the intima of the renal artery to so-called fibromuscular hyperplasia of the arterial wall and extrinsic lesions pressing on the vessel.

As the search for a better understanding of this condition has proceeded, certain clinical features have occurred with sufficient frequency in patients with renal hypertension that their presence must arouse suspicion of this entity. Thus, the clinical syndrome accompanying renal hypertension may include any or all of the following: (1) hypertension in young patients (under age 30) or onset after age 55, (2) absence of a family history of hypertension, (3) recent onset of hypertension, (4) rapid progression of previous mild hypertension, including sudden development of malignant hypertension, (5) history suggesting renal vascular accident (previous peripheral arterial emboli, flank trauma, acute flank pain), (6) failure of bed rest to result in significant fall in blood pressure,[5] (7) presence of a unilateral upper abdominal bruit, particularly if transmitted to the back, and (8) an associated hypokalemic alkalosis in a hypertensive patient not taking diuretics. This latter finding could result from excessive aldosterone secretion, but it is far from a pathognomonic feature of renal hypertension. Hypokalemia has been found in patients with hypertension of various etiologies and appears most closely correlated with the severity of hypertension rather than the specific etiology.[6] It is far from a universal occurrence in proven cases of renal hypertension. In our patients the occurrence of hypokalemia in only the 2 patients with the most severe hypertension seems consistent with the above conclusions.

Our present study includes 10 patients found to have renal artery hypertension between December 1961 and June 1964. Four of these were discovered in the last 6 months. Particular reference will be made to the clinical features and the special laboratory tests that are required to establish the diagnosis of renal artery hypertension.

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* Present address: Intern, University of California Medical Center, San Francisco, California.

Brief case histories of these 10 patients are summarized in table 1. The results of the routine laboratory studies for evaluation of hypertension are found in table 2. The special studies for evaluation of renal artery hypertension are summarized in table 3.

**TABLE 1: Clinical Observations in 10 Patients with Renal Artery Hypertension**

| Case | Age | Sex | Presenting Symptoms | Known Duration of Hypertension —Years | B.P. | Abnormal Bruit |
|---|---|---|---|---|---|---|
| 1 | 43 | M | Headache<br>Flank pain | 1 | 210/110 | — |
| 2 | 53 | M | Headache | 5 | 200/120 | — |
| 3 | 42 | M | Headache | 2 | 210/106 | — |
| 4 | 60 | M | None | 7 | 210/110 | + |
| 5 | 27 | F | None | 17 | 182/106 | + |
| 6 | 48 | M | Headache<br>Visual disturbance | 2 | 230/136 | + |
| 7 | 38 | F | None | 2 | 200/120 | + |
| 8 | 32 | M | Flank pain | 2 | 180/110 | + |
| 9 | 42 | M | Flank pain | 1 | 196/120 | — |
| 10 | 45 | M | Vertigo | 1 | 200/120 | + |

**TABLE 2: Routine Hypertension Studies**

| Case | Urinalysis | BUN* | 15 min. PSP† | Electrolytes |  | VMA‡ | EKG |
|---|---|---|---|---|---|---|---|
|  |  |  |  | K | CO₂ |  |  |
| 1 | Albumin, few RBC | N | 10% | 4.2 | 30 | N | LVH |
| 2 | N | N | N | 4.5 | 30 | N | LVH |
| 3 | N | 21 | N | 4.2 | 26 | O | N |
| 4 | N | 20 | N | 4.1 | 28 | O | N |
| 5 | 3–4 RBC | N | N | 4.0 | 29 | O | N |
| 6 | N | N | N | 3.4 | 30 | N | LVH |
| 7 | N | N | N | 3.9 | 27 | N | N |
| 8 | N | N | N | 4.0 | 30 | N | N |
| 9 | 7–10 RBC, 10 WBC | N | N | 3.8 | 29 | N | N |
| 10 | N | N | N | 3.6 | 31 | N | N |

* BUN: N = 9–19 mg. per cent.

† PSP: N = 25 per cent in 15 min.

‡ VMA: O = Not done.

## Clinical Features

The 10 patients in this study ranged in age from 27 to 53 years with an average age of 43. There were 8 males and 2 females. The presenting symptoms in 7 patients included flank pain, headache, visual disturbance, and vertigo. Three patients had flank pain and 4, headache. Three had no significant symptoms, and the hypertension was found incidentally. The duration that the hypertension was known varied from 1 year to 17 years. One patient (case 5) had known hypertension since the age of 10 and had been evaluated on many occasions. She had been on treatment since the age of 18. Her mother is hypertensive and at the present time is 50 years of age; 1 brother had hypertension and died at the age of 27 of a coronary occlusion; another brother developed hypertension at the age of 12, had a nephrectomy at 13, and suffered a cerebral vascular accident at 28.

Abdominal bruits were found in 6 of the 10 patients. These were heard on the same side as the arterial lesion in 5 patients and on the opposite side in 1. It was equally audible bilaterally in 1 case. The bruits were heard posteriorly in several of the patients and were high in frequency and nearly continuous.

The urinalyses were normal in 7 patients and in 3 patients (cases 1, 5 and 9) exhibited some red and white blood cells, and 1 patient (case 1) had a small amount of albumin. The blood urea nitrogen was normal in 8 patients and borderline in 2 patients (cases 3 and 4). The phenolsulfonphthalein excretion test was normal in all but 1 patient (case 1). The serum potassium was low in 2 patients, but both were on diuretics. The electrocardiogram was normal in 7 patients and revealed left ventricular hypertrophy in 3 patients.

## Special Studies

In this study the excretory urogram revealed delayed appearance of contrast material in 5 of the 10 patients and a significant difference in the length of the kidneys in 2 patients. Greater than 1 cm. in overall difference in length of the kidneys was considered abnormal.

The renogram and renal scans were abnormal in 50 and 56 per cent of the patients respectively.

The split function study was positive in 7 patients with criteria established by Howard. The study was negative in 1 patient and technically unsatisfactory in 2 because of either excessive bleeding or excessive bladder loss of urine. The Howard test was performed on the early patients in this study, and more recently the Stamey modification was used.

The renal arteriograms were all abnormal, with renal artery stenosis being demonstrated on the left in 5 of the patients, on the right in 4, and bilaterally in 1. Multiple renal arteries were seen in 4 patients.

**TABLE 3: Evaluation of Renal Artery Hypertension**

| Case | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Renogram* | L | N | R | L | N | L | N | N | R | N |
| Renal scan* | L | R | – | L | N | L | N | N | R | N |
| Excretory urogram* | | | | | | | | | | |
| Function | L | R,L | N | L | N | L | R | N | N | N |
| Difference in length of kidney† | L<br>3.0 | E | E | E | E | L<br>3.0 | E | E | R | E |
| Split-function study‡ | + | + | –<br>Mech. | – | + | –<br>Mech. | + | + | + | + |
| Renal arteriogram* | L | R,L<br>R,L | R | L | L | L | R | R | R | L |

* L = Abnormal on left, R = Abnormal on right, N = Normal.

† Difference in pole-to-pole length of kidney (cm.); L = smaller kidney; R = smaller kidney; E = equal size or less than 1.0 cm. difference in length.

‡ + = Positive study; – = negative study; Mech. = mechanical failure

## Surgical Findings

Seven of these patients have had surgery; 2 are awaiting surgery, and 1 preferred medical treatment to operation. Four had nephrectomy, 1 had an endarterectomy, and 1 had a myotomy of the psoas muscle and a decortication of the adventitial coat as well as the periarterial fibrosis of the right renal artery that caused complete obstruction of the right superior renal artery (case 9). In 1 patient (case 5) the stenotic region of the renal artery was excised and an end-to-side anastomosis to the aorta performed.

Postoperatively all patients had a reduction in blood pressure, and 3 patients were sent back to duty, 2 with a normal blood pressure and 1 with a blood pressure in the normotensive range while on therapy. Approximately 2 months after surgery 4 of the 6 patients were on no medication and were normotensive, and the other 2 patients were on therapy and had blood pressures less than 150 systolic and 100 diastolic. Since that time several of the patients have been lost to follow-up, so that it is impossible to evaluate the long-term effect of surgery on the control of their hypertension. A response in blood pressure to surgery was occasionally seen in spite of inability to demonstrate a gradient across the stenotic area at surgery.

## Discussion

Presented with a hypertensive patient with possible renal vascular disease, what procedures are available to the clinician to document the presence of renal occlusive disease as the etiology of hypertension and to prognosticate possible response to definitive therapy directed at correction of the offending lesion? The procedures which have been utilized to date by various workers, and in various combinations, include the following: intravenous pyelogram, $I^{131}$ hipputope renogram, $Hg^{203}$ renal scan, renal arteriogram, differential renal function tests, and finally renal biopsy.

The intravenous pyelogram is the oldest and most widely used procedure in this group. The older techniques, primarily used for study of anatomic and gross functional defects of the kidneys and collecting system, have limited use in evaluating the patient for possible renal hypertension. From films taken rapidly (preferably every minute) during the first 5 minutes after injection of the contrast material it is possible to note delay in the appearance of the dye in 1 kidney as compared to the other.[7, 8] Significant findings include a difference in length of the kidneys greater than 1.0–1.5 cm. and the delayed appearance of contrast material in 1 kidney. The size disparity is dependent on the presence of loss of cortex in the ischemic kidney. It must be remembered that the right kidney is normally slightly smaller than the left kidney (usually less than 1 cm. difference). Delayed appearance of the dye on the involved side is probably due to decreased concentrating ability of the ischemic kidney. (In most normal kidneys dye appears within 2 to 3 minutes after injection.) This test is usually performed with the patient dehydrated.

A modification of technique for the IVP is the use of prior hydration. With this method the dye will probably first appear in the ischemic kidney due to increased water reabsorption.[9]

Potential usefulness of intravenous pyelography in diagnosing renal occlusive disease has been further expanded by suggesting that "scalloping" of the upper ureter may be a significant finding. It is proposed that such scalloping represents ureteral compression due to collateral circulation resulting from obstruction to arterial blood flow. This change should be found on later films (5 to 30 minutes after injection).[10]

A quite recent addition to use of the IVP to diagnose unilateral renal ischemia is the production of a diuresis by urea infusion after dye has appeared in both calyceal systems.[11] This "pyelogram-urea washout test" depends on the fact that increased water reabsorption (without dye) in the ischemic kidney will result in failure to rapidly excrete the contrast material during the induced diuresis as occurs normally. A positive test for unilateral ischemia is said to be present if the suspected kidney retains the opaque material for 6 to 9 minutes longer than the other kidney. The authors conclude that a negative test is a reliable "radiographic split renal-function test." A positive test strongly suggests unilateral renal artery disease, which should be further evaluated by renal arteriography and split function studies.

The $I^{131}$ renogram requires specialized isotope techniques. Following the injection of the isotopic material, radioactivity is counted over both kidneys and plotted against time. The normal curve is described as showing an initial sharp "vascular" spike, a further rise due to "tubular" activity, and a gradual fall, termed the "excretory" phase. In renal hypertension the ischemic kidney may show an abnormality of any or all of these phases (delayed excretion, flat tubular phase, or markedly lowered vascular spike). The abnormal renograms in our patients showed variable changes and seem to confirm this test. This test is best interpreted by comparison with the other ("normal") kidney. There are inherent technical difficulties in this test, and opinion varies as to its diagnostic usefulness.[12-16] Some workers think that normal IVP and renogram rule out renal hypertension.[9]

The $Hg^{203}$ renal scan also by its nature becomes a specialized tool. This procedure is most useful in evaluating differences in renal size, possible segmental ischemia and/or renal infarction. It is probably not a good screening test for renal hypertension. A recent modification of the isotope techniques has been introduced by Reba et al.[17] Using $Hg^{203}$ chlormerodrin these authors have studied the curve of accumulation rate over each kidney, followed by scintillation scanning. With this method they were able to demonstrate an abnormality in 30 of 31 patients with proven renal artery insufficiency.

Objective evidence of the presence and location of an occlusive lesion of the renal artery can only be obtained by renal arteriography. Techniques with a translumbar approach involve considerable risk and have tended to make this procedure not too popular. However, with the retrograde femoral techniques much of the risk is removed, and excellent visualization of the renal arterial tree can be obtained.[18, 19, 20] The chief diagnostic problem with this procedure does not involve the test itself but rather the correct interpretation of the results. With the retrograde femoral approach for evaluation of peripheral vascular disease it has been found that up to 40 per cent of such patients will show significant unilateral or bilateral stenosis of the main renal artery. However, half of the patients showing this abnormality have normal blood pressure. Thus, the coëxistence of hypertension and arteriographic evidence of a renal artery lesion does not necessarily signify an etiologic relationship in any given patient.[21, 22] The renal arteriogram therefore is useful only to identify the presence of renal arterial disease in a hypertensive patient. Whether a lesion so demonstrated has causal significance must be determined by other tests which can show differential renal function.

This is not to detract from the usefulness of arteriography in the evaluation of patients with probable renal hypertension but only to attempt to define more clearly its position in the overall workup of such a patient. The arteriogram seems properly employed after the more accessible function tests (IVP and isotope studies) have been performed and their results suggest the diagnosis of renal ischemia. Utilized in this manner the arteriogram should help the clinician determine whether more specialized split-function tests should be employed.

A word of caution must be introduced concerning the use of renal arteriography in patients with unusual hypertensive syndromes. There have been at least 2 deaths reported from hypertensive crises following the use of this procedure in patients having a pheochromocytoma.[23, 24]

The most specialized and time-consuming test for evaluating separate renal function involves bilateral ureteral catheterization with collection of samples from each kidney. The criteria for the presence of renal ischemia with the use of original test procedure (Howard et al[25]) were the presence of greater than 50 per cent decrease in urine volume and 15 per cent decrease in sodium concentration from the abnormal kidney as compared to the other ("normal") kidney. The more recent modification (Stamey et al[26]) is an attempt to make these tests of greater diagnostic significance and appears to give a higher percentage of successful tests. With this procedure urea, Pitressin®, and inulin are infused during the period of testing to exaggerate the defect in water reabsorption in the affected kidney. In the hands of a urologist experienced in these techniques, false positive tests are probably unusual but may result from bilateral but disparate small vessel disease due to nephrosclerosis. False negative results are more likely, particularly in the presence of bilateral renal occlusive disease or a small area of renal ischemia. The chief difficulty with these procedures seems to be the mechanical problems inherent in the technique itself and the requirement of considerable experience and time for the physician performing the test.

In more recent literature the use of closed renal biopsy has been advocated for both diagnostic and prognostic evaluation of these patients. The presence of demonstrable increase in the granularity of the juxtaglomerular cells of the suspected kidney would be anticipated if an ischemia-producing arterial lesion were present in that kidney. Indeed, such changes have been shown preoperatively in patients with renal hypertension whose hypertension responded quite favorably to surgical treatment of their lesion.[16] However, it has been noted that increased juxtaglomerular granularity is also demonstrable in patients with small-vessel (intrarenal) arterial disease due to nephrosclerosis.[27] This finding is consistent with our present view of the cause of increased renin production if we consider nephrosclerosis as representing occlusive disease of the terminal portion of the renal arterial system rather than at its beginning as with gross lesions. This phenomenon becomes quite disturbing when one attempts to attach diagnostic and or prognostic significance to the juxtaglomerular granules.

In spite of many varied specialized diagnostic procedures the answer to the problem of finding and successfully treating the patient with reversible hypertension due to renal artery disease is far from solved. The available surgical techniques now include endarterectomy, by-pass graft, and simple nephrectomy. With the procedures discussed above it seems that we have reached some degree of proficiency in diagnosing the presence of renal hypertension. However, continued disappointing responses in the blood pressure following surgery by any of the available techniques are common. Once having established the diagnosis we are faced with the problem of which kidney to operate on and what procedure to perform. The problem is fostered by the knowledge that the kidney supplied by the abnormal artery may actually be the "healthy" kidney, having been "protected" from the ravages of the hypertension which it has produced.[28, 29, 30] In addition, previously unsuspected primary renal disease (pyelonephritis, glomerulonephritis) in hypertensive patients has been discovered only after renal biopsy.[31]

Thus, it appears that, in spite of our diagnostic competence, what is needed is a means to prognosticate the effect of surgical treatment so that we might identify prior to operation the cases in which the hypertension is still reversible. Recent observations by Vertes et al[32] have exciting implications of the possible prognostic importance of preoperative renal biopsy. These authors make a plea for evaluating the presence or absence of "intrarenal vascular disease" prior to surgery in both kidneys before treatment of a renal arterial lesion is attempted. They conclude that hypertension due to unilateral or bilateral renal arterial insufficiency can be corrected with by-pass graft only in the presence of minimal, or absent, intrarenal arterial disease in both kidneys. In addition, the finding of significant small-vessel disease in the ipsilateral kidney but not in the contralateral kidney should indicate a good result from ipsilateral nephrectomy. The presence of bilateral intrarenal arterial disease implies that a successful response to surgery cannot be expected.

## Conclusion

In dealing with a patient with apparent renal hypertension the physician must be equipped to properly utilize and interpret the various procedures at his disposal. Factors such as expense and risk must surely be considered, and it should be remembered that renal hypertension can usually be adequately controlled with potent antihypertensive medications currently available. However, this would commit the patient to a lifetime of hypertensive therapy due to a potentially correctible lesion. Another important consideration is the magnitude of the proposed surgical procedure necessary to correct these lesions and the risks involved. After consideration of the above factors it is the duty of the attending physician to leave no stone unturned before he advises his patient about treatment. From review of the above discussion it appears that such evaluation must include all the available tests, including bilateral renal biopsy. Only in this way can we properly approach the problem of renal hypertension with the dual purpose of giving our patients the best possible treatment and attempting to contribute to the overall understanding of this entity by information obtained from experience with such patients.

After reviewing our experience with patients having renal hypertension over the past 2½ years, the variability in response to surgical treatment reaffirms the need for preoperative renal biopsy. We anticipate such an approach with future patients.

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## Radiologic Examinations of Women of Reproductive Age

The International Commission of Radiological Protection wishes to call attention to reports of embryonic and fetal sensitivity to ionizing radiation and to emphasize that the possibility of pregnancy must be taken into account by the attending physician when deciding on radiologic examinations that involve the lower abdomen and pelvis of women of reproductive age. The Commission also wishes to point out that the 10-day interval following the onset of menstruation is the only time when it is virtually certain that women of such age are not pregnant. Therefore, it is recommended that all radiologic examinations of the lower abdomen and pelvis of women of reproductive age that are not of importance in connection with the immediate illness of the patient be limited to this interval, when pregnancy is improbable. The examinations that should be delayed to await the onset of the next menstruation are those that could without detriment be delayed until the conclusion of a pregnancy or at least until its latter half.

# Office Bacteriology: A Practical Therapeutic Guide

**LT. COMMANDER G. W. MELLA, MC, USN**

*Chief, Pediatric Outpatient Department, United States Naval Hospital, Bethesda, Maryland*

**CAPTAIN A. M. MARGILETH, MC, USN**

*Chief, Pediatric Service, United States Naval Hospital*

THE GENERAL PRACTITIONER and the pediatrician are both aware of the frequency of respiratory infections in children. This problem has led us and others[1, 2] to seek certain criteria for guide lines in the management of such infections in order to avoid the complications of respiratory illness and the overuse of potent and potentially harmful drugs.

During the past 7 years we have utilized a simple adjunct for management of upper respiratory tract infections in the daily practice of pediatrics at 2 Naval hospitals. The purpose of this report is to discuss our method of using bacterial cultures as a diagnostic guide for therapy in order to encourage other clinicians to employ similar techniques more frequently.

Establishment of a small bacteriology laboratory in the pediatric outpatient department has been enthusiastically accepted by all medical and allied personnel. A previous report[3] outlined the basic objectives of our work. These are (1) to determine the monthly occurrence and seasonal variation of streptococcal disease in the community and to maintain current information on the progress of local outbreaks, (2) to correlate clinical with bacteriologic diagnoses and to evaluate our ability clinically to detect streptococcal infection, thereby eliciting greater interest in respiratory problems and their sequelae, (3) to avoid use of antibiotics indiscriminately (Since most respiratory illnesses are caused by viruses[4, 5] culturing gives additional evidence for delaying treatment of doubtful cases.), (4) to assure prompt reporting of culture studies (We processed the cultures in our own clinic, and the results were known within 24 to 48 hours. This complemented physician-parent rapport.), and (5) to ascertain the number of carriers and positive contacts of patients with beta hemolytic streptococcal pharyngitis.

## Materials and Methods

Cultures were obtained from patients in the appointment and walk-in clinics and those admitted to the pediatric ward by members of the pediatric department. Children are seen in our department from birth to 12 years of age with the majority under 8 years of age.

Throat and nasopharyngeal swabs were done on children with respiratory illness. Bradford wires were used for the nasopharynx.[6] These were placed in tubes of nutrient broth and then inoculated on blood agar plates which were incubated at 37 C. Exudate from skin, eye and wound infections was collected in the same manner and planted on blood, mannitol, and MacConkey's media.

Plates were examined directly at 24- and 48-hour intervals by the pediatric staff. On occasion a hand magnifying lens or low power (× 100) microscope was used to determine complete (beta) or partial (alpha prime) hemolysis of the red blood cells. Plates with beta hemolytic streptococci were then sent to the main laboratory for Taxose A* (bacitracin) disc grouping,[7] and those with hemolytic staphylococci were sent for coagulase study. It was rarely necessary to perform a gram stain on doubtful colonies because the clinician gained experience in recognition of the colony characteristics.

In order to standardize our diagnoses, patients were identified according to an arbitrary classification (A,B,C) of the appearance of the throat (table 1). A designation of X was used if no diagnosis was stated by the physician. If the only diagnosis was otitis media or acute rhinitis, laryngitis, etc., the A,B,C designation was not used. When patients were not acutely ill, anti-

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* Taxose A discs (Baltimore Biological Laboratory, Baltimore, Maryland).

**TABLE 1: Clinical Classification of Acute Pharyngitis**

A throats—Erythema, edema and/or exudate, and tender cervical lymph nodes
B throats—Erythema, edema and/or exudate without tender cervical lymph nodes
C throats—Erythema only
D throats—Normal throat with other respiratory symptoms or signs

biotic therapy was withheld 24 hours until the culture plate was studied. This offered the advantage of a return telephone call to determine results of symptomatic therapy and to notify the parent of the culture report. Symptomatic therapy consisted of the use of fluids, antipyretics and decongestants, with antihistamines as indicated. If a child was acutely ill with purulent otitis media or possible streptococcal pharyngitis, antibiotic therapy was usually initiated on the first visit. Although throat cultures were routine in all respiratory illnesses, a white blood cell count, an X-ray film of the chest, PPD or urinalysis were done as indicated. Family contacts were cultured if beta hemolytic streptococcus was recovered.

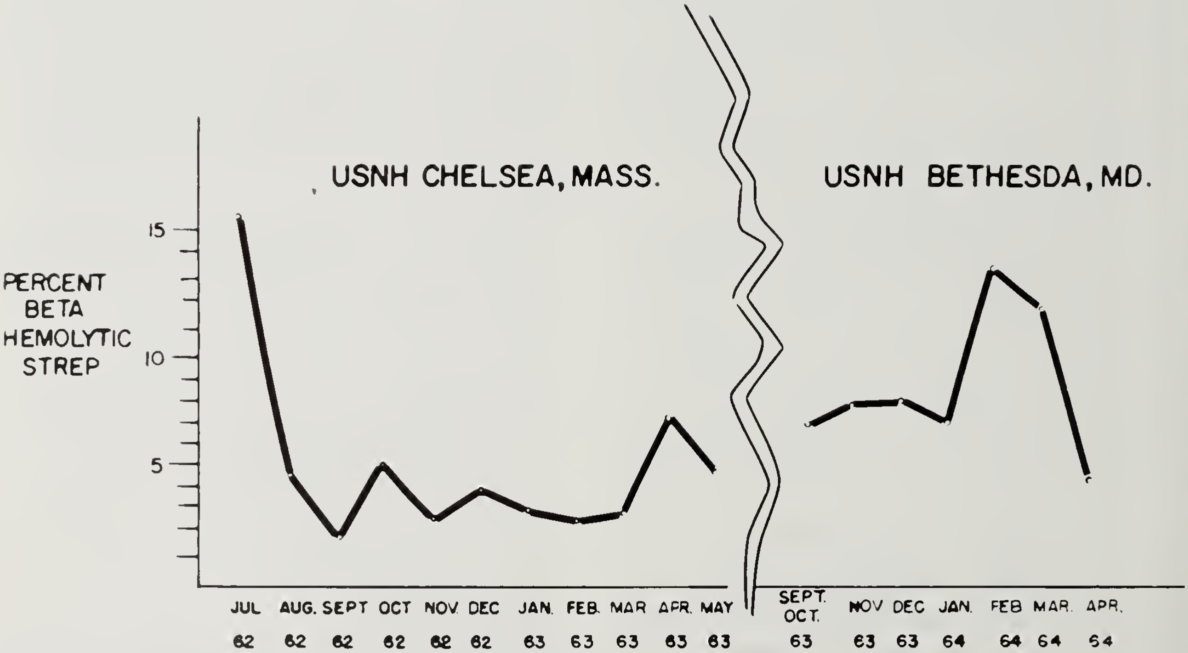

**FIG. 1. Monthly incidence of Group A beta hemolytic streptococci found in nose and throat cultures of patients with acute pharyngitis (types A, B, C) at 2 Naval hospitals.**

## Results

The first 7 months of culture data at Bethesda Naval Hospital was compared with a similar study made in 1963 at the U.S. Naval Hospital, Chelsea, Massachusetts. Figure 1 shows the incidence of group A beta hemolytic streptococcus recovered from patients with acute pharyngitis (types A, B, C) from July through May in 1962 to 1963 (Chelsea), and from October through April in 1963 to 1964 (Bethesda). The greatest frequency at Chelsea was 15.6 per cent in July 1962; at Bethesda it was 13.8 per cent in February 1964. Tabulation of positive reports of beta hemolytic streptococcus gave us a current guide to the management of respiratory illnesses in children and their contacts.

Figure 2 illustrates the effectiveness of clinical diagnosis in dealing with respiratory infections. "A" and "B" pharyngitis consistently yielded the greater percentage of group A beta hemolytic streptococci. In other studies the physician's accuracy in diagnosing beta hemolytic streptococcal pharyngitis clinically has been as high as 75 per cent.[1] Since diagnostic ability varies with the experience of the examiner, it may not be as accurate in a teaching institution where physicians with varied experience practice. In our series the highest figure attained was 35 per cent of "A" pharyngitis due to group A beta hemolytic streptococcus. The salient observation, however, is the consistency of higher percentages in "A" throats, slightly less in "B" throats, and considerably less in "C" throats.

Figure 3 illustrates how frequently our patients were treated. The "A" throats received antibiotics more readily than those with a "C" pharyngitis, as would be expected. The line "D" on the right side of the table shows the overall use of antibiotics. The frequency of antibiotic therapy in patients having cultures ranged from 14.5 to 26 per cent.

siding infection, or improper technique of obtaining the culture. In borderline situations, i.e., less than 5 or 10 colonies, we elicit a telephone report from the family as to the child's progress. If there is doubt as to how the patient is faring, another visit is requested. After reëxamination, depending upon the findings, we may perform a complete blood count and repeat the culture and prescribe as indicated.

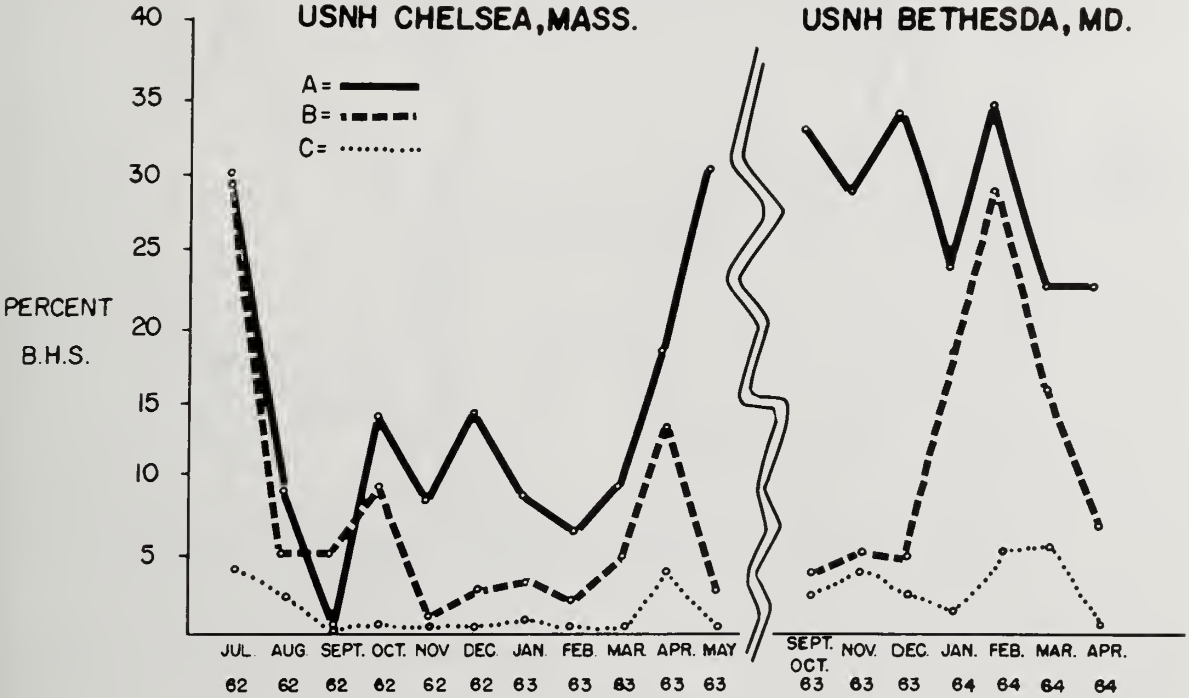

**FIG. 2.** Comparison of Group A beta hemolytic streptococci found in the 3 types of acute pharyngitis (types A, B, C).

## Comments

Introduction of a systematic nomenclature for classifying acute pharyngitis has greatly facilitated the diagnosis and subsequent therapy of upper respiratory infection in large numbers of children in the outpatient department. This approach has lessened the problem of accurate diagnoses when multidisciplined physicians describe the same disease entity. As individual Petri plates are studied by the staff diurnally, each physician reviews the history and physical findings of his patient. Decision for definitive therapy is then determined. Interest in respiratory illness engendered by the staff in this manner carries over to the patient and results in an educational experience for all.

It is not our intent herein to comment on the accuracy of throat or nasopharyngeal culture techniques[8] nor the use of fluorescent antibody methods.[9] The presence of 10 colonies or more of beta hemolytic streptococci on a plate has been selected as indicative of acute infection.[7] Less than 10 colonies suggests a carrier state or sub-

There appears to be some benefit from a time lag between the onset of a streptococcal illness and the initiation of penicillin therapy.[2, 10] We have not confirmed this; however, during the 7 years that office bacteriology has been utilized in more than 110,000 outpatients, we have not seen a patient with rheumatic fever or glomerulonephritis. During this period children with these sequelae were seen, but they were referred from other areas that did not routinely employ bacteriologic methods. It is possible that many children who experience repeated episodes of streptococcal disease do so because administration of penicillin is begun immediately on the first signs of illness, and the child is thwarted in developing antibodies.[11] A retrospective study[12] of 485 patients with rheumatic fever discussed the therapy time lag in relation to the nonsuppurative complications of streptococcal disease. The intent of that review was to show that any delay in therapy resulted in a significant number of

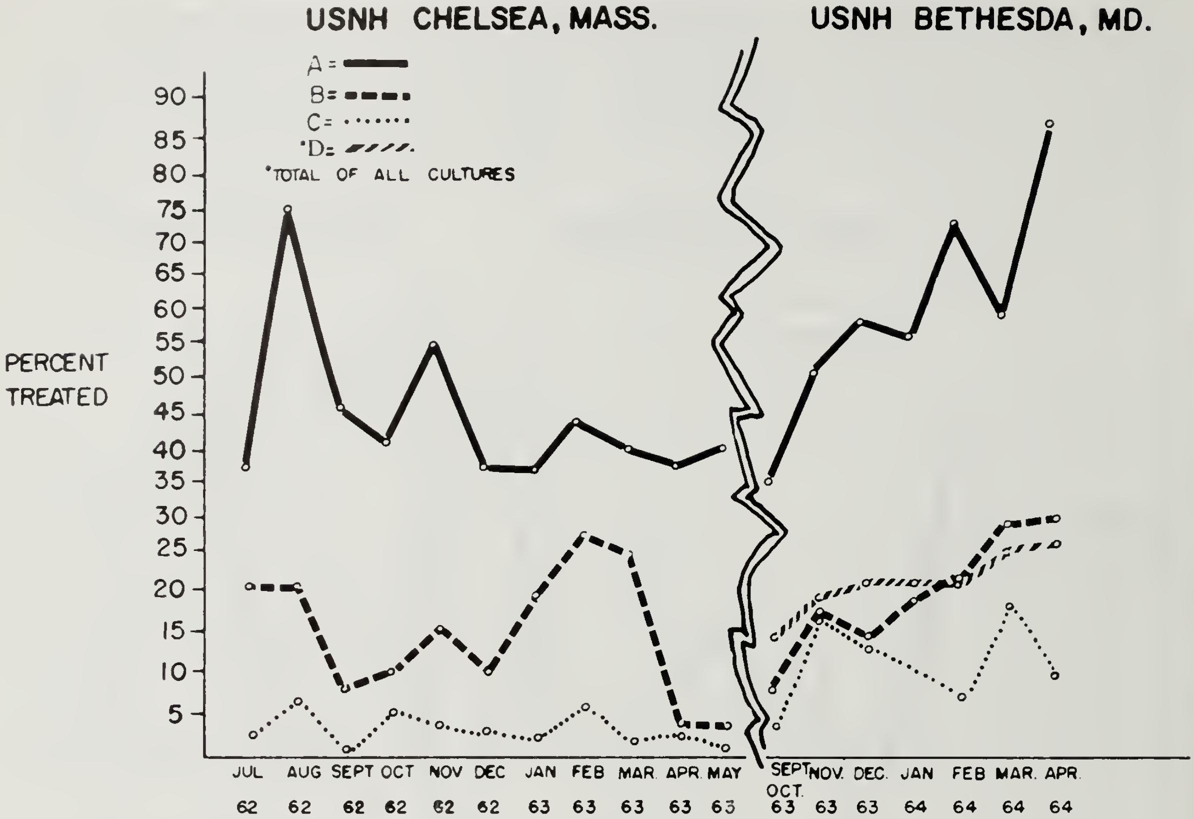

FIG. 3. Monthly incidence of patients treated with antibiotics for pharyngitis that showed norma flora on culture. Note: Line "D" on right side shows overall use of antibiotics in all patients cultured.

cases of rheumatic fever that could have been prevented by prompt therapy. It was emphasized that identification of beta streptococcus by conventional means may require 5 to 10 days. Since we examined cultures each day, a definitive decision for therapy could be made in 24 to 72 hours.

Another aspect of bacteriology in the office is the cost. In our clinic with a large volume of children with respiratory illnesses the cost has averaged 10 cents per patient. This included swabs, broth, agar, plates, and sterilization. In smaller clinics the cost would be higher (about $1.00 to $2.00), but this would be more than offset by the decrease in the number of patients treated with antibiotics. One dose of benzathine penicillin will cost from $2.00 to $3.00 depending on the weight of the patient. We prescribe 600,000 units of Bicillin®* for children under 60 pounds and 1.2 million units for those over 60 pounds. A 10-day course of oral tetracycline may cost from $6.00 to $10.00 per patient. Cost and time are the 2 most common objections used by physicians when they prefer not to use cultures.[13, 14, 15] The actual cost of a culture does not reflect the value received in interest, education, and total patient care.

### Summary

A continuous study of the use of routine cultures in the pediatric outpatient departments of 2 Naval hospitals has been presented. Facilities for performing simple bacteriologic studies in the pediatric clinic have increased interest by physicians in respiratory illness and streptococcal disease. The results of throat cultures have been used as a guide for appropriate antibiotic therapy. As a result, in most cases one of the major problems in our clinic, that of respiratory illness, has been easily managed with symptomatic therapy. In conclusion, we advocate the routine use of office bacteriology as a guide in the management of upper respiratory infections in children.

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* Bicillin® (Wyeth Laboratories, Inc., Philadelphia, Pa.)

# The Recognition of Heart Disease in Infants

**LT. COMMANDER L. P. SCOTT III, MC, USN***

*Department of Cardiology, Medical Service, United States Naval Hospital, Bethesda, Maryland*

THE IMPORTANCE OF HEART DISEASE as a cause of infant mortality is generally not appreciated. In the District of Columbia cardiovascular abnormalities in infants under 1 year of age accounted for 53–61 per cent of congenital malformations resulting in death during the years 1960–1962.[1] These figures are more impressive when one considers congenital malformations ranking second only to neonatal asphyxia as a cause of infant deaths.

Heretofore the recognition of heart disease in infants was merely of academic interest for little could be done for the child. With the advent of new diagnostic and surgical techniques, however, early prompt recognition before the ravages of congestive heart failure or anoxia had taken their toll may mean the difference between life or death for the infant.

The purpose of this paper is to stress the cardinal manifestations of heart disease in the newborn. The exact diagnosis, once heart disease is recognized, will frequently require more elaborate diagnostic facilities, such as cardiac catheterization, cine-angiography, etc., not offered by the average hospital. However, for these facilities to be properly utilized in the community prompt recognition of heart disease by the generalist is mandatory.

What then are the cardinal manifestations of heart disease in the newborn?

## Cardiac Murmurs

In the newborn infant the frequency with which one hears a murmur depends on how close he examines the chest. Richards[2] in 1955 reported that less than 2 per cent of newborns have murmurs. More recently Burnard[3] reported that 50 per cent will have murmurs within the first 24 to 48 hours, presumably due to persistent flow through the ductus arteriosus, the point being that if one carefully auscultates infants' chests he will frequently encounter murmurs which, for the most part, are of no hemodynamic significance. More important is whether this murmur persists and whether it is associated with other manifestations of heart disease such as cyanosis, cardiac enlargement, and abnormalities in the electrocardiogram. To the physician involved in a busy practice approximately 1 out of 5 murmurs heard in the newborn period will probably represent organic heart disease.

The type of murmur is frequently more important than the mere existence of the murmur. The so-called stenotic or diamond-shaped murmur which begins after the first sound and ends before the second usually is indicative of semilunar valve obstruction. Such murmurs are frequently heard immediately after birth. When heard best at the upper left sternal border, pulmonary stenosis or a patent ductus arteriosus should be considered. The murmur of aortic stenosis is usually heard best at the lower left sternal border and is frequently mistaken for a ventricular septal defect. Finally, when the murmur is heard best posteriorly the presence of coarctation of the aorta is suggested. Appropriately recorded blood pressures will immediately detect this lesion.

The pansystolic murmur which begins with the first sound ending with the second may be difficult to differentiate from the stenotic murmur because of the rapidity of the infant's heart rate. However, its presence well localized to the left sternal border and accompanied by a systolic thrill is typically the murmur encountered with ventricular septal defect. Such a murmur may not be heard initially because of the persistence of high pulmonary resistance and pressure. However, once the pulmonary artery pressure and resistance fall, left-to-right shunting through the defect occurs and the murmur appears. Recent reports,[4, 5, 6] as well as my own experience, indicate that from 10 to 20 per cent of such murmurs heard in the newborn period spontaneously disappear within the first year of life.

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* Currently cardiologist to Children's Hospital of the District of Columbia, Washington, D. C.

Other causes for pansystolic murmurs heard early in life are insufficiency of the mitral and tricuspid valves, the former being heard best at the apex, the latter at the lower sternal border. If associated with left axis deviation on the electrocardiogram an endocardial cushion defect is the likely lesion. On the other hand, the murmur of tricuspid insufficiency encountered with severe valvular and pulmonary stenosis demands prompt recognition if relief of the critical stenosis is to be effected.

Diastolic murmurs in newborns are exceedingly difficult to evaluate because of the rapidity of the heart rate. The early diastolic blow characteristic of aortic or pulmonary insufficiency is rarely encountered. The most frequently heard diastolic murmur is the low-pitched mid-diastolic rumble at the apex, due to increased flow across the mitral valve in the presence of a large left-to-right shunt through a ventricular defect or patent ductus arteriosus.

The presence of continuous murmurs in newborns may well represent a patent ductus arteriosus, but this finding should lead the physician to consider other diagnoses such as truncus arteriosus, pulmonary artery branch stenosis, and coronary A-V fistula.

It is important to recognize that murmurs in newborns are profoundly affected by the presence of congestive heart failure. Only after adequate control of the failure will the typical murmur be heard.

## Cyanosis

Many of the severe congenital cardiac defects are first encountered because of the early recognition of cyanosis. However, all cyanotic infants do not have heart defects. Infants with severe central nervous system disease associated with respiratory depression may be cyanotic. Manifestations of the central nervous system disease are usually accompanied by findings such as convulsions and absent reflexes.

Likewise, infants with respiratory disease such as atelectasis, respiratory distress syndrome, etc., may show varying degrees of cyanosis because of poor alveolar aeration or diffusion. Such infants will generally lose their cyanosis when placed in an atmosphere of oxygen.

Finally, peripheral cyanosis of the extremities is commonly encountered in the newborn. This cyanosis may be patchy, giving a mottled appearance to the extremities but not being visible in the mucous membranes of the mouth. Immaturity of peripheral vasomotor control results in stasis with increased oxygen extraction from the capillary bed and the production of visible cyanosis.

The cyanosis of congenital heart disease due to intracardiac right-to-left shunting is usually associated with other manifestations of heart disease such as murmurs, breathlessness, and associated abnormalities in the X-ray films and the electrocardiogram. Characteristically this cyanosis is minimally influenced by the administration of oxygen.

Cyanosis with large hyperactive hearts with or without cardiac murmurs and X-ray findings of pulmonary vascular engorgement is frequently found with transposition of the great vessels. Similarly, hypoplasia of the left heart (mitral and aortic atresia) may give rise to this picture. In contrast, cyanosis associated with a normal-sized heart and ischemic lung fields by X-ray examination with or without a murmur is characteristic of pulmonary stenosis with a ventricular septal defect, the so-called tetralogy of Fallot. Both conditions have abnormal degrees of right ventricular hypertrophy by electrocardiogram. The latter clinical picture associated with left axis deviation and left ventricular hypertrophy on the electrocardiogram suggests the diagnosis of tricuspid atresia. Finally, and most important, is the recognition of severe pulmonary stenosis in the presence of an intact ventricular septum. Marked degrees of right ventricular hypertrophy shown electrocardiographically and with a large heart and clear lung fields suggest the diagnosis. The presence of a left sternal border systolic murmur with progressive liver enlargement completes the clinical picture. Prompt diagnosis and treatment may be life-saving.

Brief mention should be made of congenital methemoglobinemia as a cause of newborn cyanosis. Oxygen administration will not improve this cyanosis. If one bubbles oxygen through a heparinized venous sample there will likewise be no significant formation of oxyhemoglobin; that is, the blood will not become bright red.

## Respiratory Distress

Clinical observation of respirations is best made when the infant sleeps. Normal newborns breathe 40 to 50 times per minute. Cheyne-Stokes respirations are frequently observed in newborn infants, particularly prematures.

In infants with heart lesions resulting in left-sided heart failure (pulmonary edema) breathlessness becomes the presenting manifestation of the heart disease. Respirations are increased in rate and amplitude with the frequent appearance of subcostal retractions. Pulmonary rales may or may not be heard. As the pulmonary congestion advances, alveolar diffusion is impaired and cyanosis develops. This cyanosis usually clears with oxygen administration. The effort of sucking worsens the distress necessitating small feedings at frequent intervals. Observant parents will occasionally notice the relief afforded by holding the infant in the upright position, the infant equivalent of orthopnea.

In infants with ventricular defects and pulmonary stenosis, right-to-left shunting occurs with resultant diminished pulmonary blood flow and varying degrees of hypoxia. Breathlessness and cyanosis develop in the absence of other signs of congestive heart failure. Characteristically, the cyanosis and breathlessness vary in intensity from hour to hour and day to day. Following feedings, bowel movements, and after waking the infant may become noticeably agitated, during which time he will become more breathless and cyanotic. The murmur of pulmonary stenosis during this period becomes less intense and may even disappear. If the period of hypoxia lasts sufficiently long the infant loses consciousness and may have a convulsive seizure. Placement of the infant in the knee-chest position with the administration of oxygen and morphine helps control and prevent such hypoxic episodes.

### Congestive Heart Failure

Congestive heart failure is commonly encountered as an early manifestation of heart disease in infancy. Generally speaking, the earlier the failure appears the more ominous the prognosis. Most often breathlessness, tachypnea, tachycardia and hepatomegaly herald the onset of failure. Signs of peripheral edema in the infant are usually not as apparent as in an adult, and when it occurs is most often recognized as periorbital edema.

Transposition of the great vessels, hypoplasia of the left heart (with mitral and aortic atresia), and pulmonary atresia with an intact ventricular septum are often associated with the onset of congestive heart failure in the first few days of life. Unless recognized and properly treated the outcome is almost always fatal.

The heart failure of large left-to-right shunts through ventricular defects, patent ductus arteriosus, or truncus arteriosus may be delayed in onset until 1 to 2 months of age. It is not until this time that pulmonary resistance has fallen sufficiently to allow enough left-to-right shunting to produce the overt signs of heart failure.

### Arrhythmias

Arrhythmias, on occasion, are the presenting manifestation of heart disease in infants. Slow ventricular rates of 40 to 50 suggest complete heart block. About 50 per cent of these infants will have associated structural defects within the heart. Isolated complete heart block, usually benign, may occasionally give rise to fatal Stokes-Adams attack even in young infants.[7]

Supraventricular tachycardias with ventricular rates over 200 are the most common arrhythmias seen in young infants. The arrhythmias occur much more commonly in boys and if adequately treated with digitalis usually revert to normal sinus rhythm. The presence of structural abnormalities in the heart coëxist in about 20 per cent, while an additional 10 per cent have the Wolff-Parkinson-White syndrome.[8]

### Electrocardiography

In order to understand the electrocardiogram of infants it is important to keep in mind the hemodynamic changes occurring in the cardiovascular system shortly after birth. During fetal life the right ventricle is pumping blood under systemic pressure through the ductus arteriosus into the aorta. As a result, at birth the wall of the right ventricle is of the same thickness as the wall of the left ventricle. This is reflected in the infant's electrocardiogram by the presence of right axis deviation and hypertrophy by adult standards. The usual progression of voltage across the chest in an adult is from negativity in $V_1$, as characterized by a predominant S wave, to positivity in the left chest, as characterized by a predominant R wave. In the infant this progression is reversed giving rise to a predominant R wave in the right chest and a large S wave in the left chest. Abnormal degrees of right ventricular hypertrophy are suggested when there is (1) a pure R in $V_1$ of 15 mm. or more, or (2) a QR pattern in one of the right chest leads.

Left ventricular hypertrophy is suggested by the presence of a normal adult progression of voltage in the precordial leads.

### X-ray Examination

The diagnosis of heart disease in infants is greatly facilitated by properly performed X-ray examination. All too often, however, X-ray films are technically poor and lead to confusion in diagnosis. For accurate interpretation an X-ray film of the chest should be adequately centered and taken at the end of inspiration with at least 9 interspaces of lung showing. A lesser degree of inspiration gives a spurious impression of cardiac enlargement. The thymic shadow, by adding to the contour of the cardiac silhouette, often suggests the presence of cardiac enlargement. Fluoroscopic examination, preferably with an image intensifier, will allow the radiologist to distinguish the thymic shadow as it moves over the heart during respiration.

The X-ray evaluation of pulmonary vasculature is extremely difficult in young infants. Overpenetration with X-rays results in normal lungs appearing avascular, whereas underpenetration suggests pulmonary vascular engorgement. As a rough guide to proper exposure one can use the vertebral column as a frame of reference. In overpenetrated films the vertebral column stands out in clear detail, whereas it is barely recognizable when the film is underexposed.

Radiographically the configuration of a normal infant's heart suggests preponderance of the right ventricle. This is manifested by the apex of the heart being cocked-up off the diaphragm.

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## Clinical Center Study of Chronic Myelogenous Leukemia

The coöperation of physicians is requested in a continuing study of chronic myelogenous leukemia being conducted by the Medical Service of the National Cancer Institute at the Clinical Center, National Institutes of Health, Bethesda, Md.

Referrals of patients with chronic myelogenous leukemia are needed. Particularly needed are those in the 20- to 40-year age group with high white blood cell counts and platelet counts, for studies of newer chemotherapeutic agents and as a source of white cells and platelets for in vitro and in vivo study.

Physicians who wish to have their patients considered for the study may write or telephone Dr. Paul P. Carbone, Clinical Center, Room 10-N-106, National Institutes of Health, Bethesda, Md. 20014; telephone: 496-4251.

# Postoperative Pain

**LIEUTENANT JAMES W. COTTINGHAM, MC, USN**

*Department of Anesthesiology, United States Naval Hospital, Bethesda, Maryland*

DEATH was once the fear of every presurgical patient. Advances in anesthesia and surgical techniques have now given a relative assurance of rapid recovery to preoperative status, and the fears of our ancestors have undergone transition to a new fear—the fear of pain. With recovery taken for granted, postoperative pain—its severity, duration, and effective control—is of major concern to the modern presurgical patient. A recent survey of narcotic practices in Jefferson Davis Hospital in Houston disclosed that two-thirds of all doses of narcotics dispensed for inpatients were used on the surgical services, and of these three-fourths were used in the treatment of postoperative pain.[1]

### The Philosophy of Pain

Pain, its existence and its fears, has had a profound effect on man's basic philosophy since early in civilization. In the third chapter of the book of Genesis it is noted that God said to Eve after the eating of the forbidden fruit: "I will greatly multiply thy sorrow and thy conception; in sorrow thou shalt bring forth children." Not only was the judgment of God for the committing of the original sin cast in the framework of bodily pain, but so too have been the actions of rulers of states and others in authority toward those convicted of crime. Undoubtedly much thought has gone into devising means of producing pain in the interest of group justice.[2]

Up until the middle of the 19th century Aristotle's philosophic concept of "pain being the opposite of pleasure and the equivalent of unpleasantness" was accepted throughout the world. Then came the "law of specific nerve energies" set forth by Muller in 1840 which can be interpreted to mean that each sensory quality has its own specific sensory unit. The development of this concept has continued until now, and upon it is based most of what we have been taught about sensations. Therefore, from Aristotle to the present, it has taken man 2,500 years to discard the mysticism associated with pain and to finally approach the subject scientifically, and it will probably take again that long to now unravel the multitude of components which comprise the total pain experience of an individual.

### Pain Perception vs. Reaction

Pain has 2 components, the original sensation and the reaction to that sensation. Before we as physicians can prescribe analgesics we must understand not only which of the 2 components or both that we are treating but also how each varies among individuals.

Much work has been done to evaluate pain thresholds in the belief that individual suffering was related directly to the amount of pain stimulus. Beecher[3] has shown that there is no correlation between pain threshold and the suffering experienced by the patient. A small dose of morphine which does not raise the pain threshold any more than a large dose of aspirin is much more effective in relieving pain than the large dose of aspirin. Since the "perception" component is not dependably altered by these agents, the psychic reaction or the processing component in man is the principal site of action of analgesic drugs.

The following are a few characteristics of perception of pain that are specific[4]:

There is no constant, necessary, or proportionate relationship between perception of pain and the reaction to that perception.

Intensity of pain perception arising from a lesion is independent of the size or location of the lesion.

When 2 or more sources of pain stimuli exist coincidentally, perception is usually monopolized by the most intensive; it appears as if in the competition for recognition by the central processing mechanism one wins and is accepted and the others are more or less ignored. This may explain a patient's failure to complain of pain in one area, such as the chest, when he also has pain in another area, such as the pelvis. This phenomenon is dependent upon apparent absence of summation. It is the basis for the device learned in childhood that the pain of sudden trauma, such as a bruise, can be alleviated by the institution of another, such as biting the lips.

Though perception is relatively constant, it is amenable to modification by drugs and by powerful emotional states. Thus the recently bodily wounded show little or no evidence of pain, not only because reaction is diminished or absent but also because perception itself may be grossly disturbed. The patient, on questioning, may deny that he feels any pain.

Pain reaction in contradistinction to perception is widely variable among different individuals and in the same individual from time to time. It has no definite localized apparatus of function. It is a cognitive process and thus, being affective, is under the influence of the whole gamut of the patient's experiences, emotions, and needs as well as the environmental circumstances at the moment.

Although there is some objective evidence suggesting the existence of severe pain—tachycardia, drawn facies, pallor, sweating—reaction is largely immeasurable. The manifestations of reaction are the patient's complaints and his physical and mental responses.

Several important further characteristics of pain should be considered[4]:

Pain varies widely in severity from time to time, and very severe pain does not persist unchanged for any protracted period. The pain of carcinomatoses is particularly prone to waxing and waning.

Occasionally severe and intractable pain from a known appropriate lesion such as a malignant mass or from trigeminal neuralgia may cease abruptly for no demonstrable reason.

The presence of general disability, malnutrition, fatigue, or any circumstance in which emotional stress or anxiety occurs makes the reaction to a given pain stimulus more marked or more difficult to treat.

Tolerance for pain is a highly individualized trait. It is dependent upon many factors—cultural, familial, environmental. It frequently appears to be influenced by the patient's concept of what kind of reactions are appropriate and are expected of him in the circumstances at hand.

In a recent survey of 293 postoperative patients that were given alternate injections of normal saline and a narcotic in treatment of their pain, no less than 43.2 per cent of the 493 doses of saline resulted in pain relief.[1] Each dose was given in the first 20 hours after surgery for major abdominal procedures. This great power strongly supports the view that drugs that are capable of altering subjective responses and symptoms do so to an important degree through their effect upon the reaction component of suffering. Beecher[3] has reported the results of 15 separate studies involving over 1,000 patients in whom placebos were found to have an average significant effectiveness of 35.2 per cent. These figures are supported by dozens of other experiments showing that the usual reported incidence of 26 per cent effectiveness of placebos may actually be a conservative figure.

The "pharmacologic action" of placebos is not limited to pain relief. Beecher[3] reports the following incidence of side-reactions: dry mouth, 9 per cent; nausea, 10 per cent; sensation of heaviness, 18 per cent; headache, 25 per cent; difficulty in concentrating, 15 per cent; drowsiness, 50 per cent; warm glow, 8 per cent; relaxation, 9 per cent; fatigue, 18 per cent; sleep, 10 per cent. He also reported patients developing rashes, angioneurotic edema, and constricted pupils, not only with the placebo, but also later with an injection of a narcotic.

Most postoperative patients are not consistent placebo reactors or nonreactors, at times obtaining relief from placebos and other times not.[1] This introduces a temporal characteristic apart from basic personality characteristics in determining placebo response. This temporal characteristic may be dependent upon such things as day or night, visiting hours, time from operation, or implication of the patient's disease. In comparing a group of consistent placebo reactors with a group which consistently failed to obtain pain relief from placebo, there have been found significant differences in the attitudes, habits, educational backgrounds and personality structures among the patients. Yet the placebo reactor could not be identified by the casual observer, but could only be delineated by extensive and careful psychologic techniques. These investigations are stimulating further studies on the effect of personality characteristics on drug action.

## Characteristics of Postoperative Pain

There are many misconceptions among physicians as to the severity of pain which follows certain surgical procedures, and more especially to the relative merit of various drugs in its treatment. These "clinical impressions" are prevalent because nurses, not physicians, treat postoperative pain. Observations made by nurses are often based on criteria which do not necessarily coincide with good medical practice. Much of what is believed to be known about postoperative pain is the result of such observations as recorded in nursing notes.[1]

*Incidence.* Periodically, investigators who use postoperative patients for their studies rediscover that many patients do not have pain following surgery.[1] Papper, Brodie, and Rovenstine[5] found that 44 per cent of their 237 postoperative patients failed to complain of pain. Included in this group were 108 patients who had had intra-abdominal or intrathoracic procedures, and of these 27 per cent did not complain of pain. Jaggard, Zager, and Wilkins[6] found that 36 per cent of 1,005 patients received no narcotics during the entire postoperative period. Keats[1] reported 21 per cent of 104 patients who had undergone either gastrectomy or colectomy received 1 or no dose of narcotic during the entire postoperative period. Papper, Brodie, and Rovenstine[5] found that 58 per cent of patients having surgery of the superficial parts of the body did not complain of pain after operation, in contrast to only 27 per cent for those having abdominal or thoracic procedures.

Pain is the postoperative patient's chief complaint, but he may complain bitterly and primarily of symptoms such as sleeplessness, discomfort from gastric tube or oxygen catheter, sore throat, headache, backache, uncomfortable position in bed, bladder discomfort from indwelling catheters, tightness and weightiness of casts, or discomfort from shivering in an air-conditioned room. These symptoms as primary complaints are responsible for 10 to 15 per cent of all requests for medications, and narcotics are not required for their relief.

*Duration.* Pain of severity sufficient to require narcotics usually disappears within 48 hours after surgery, with 87.4 per cent of all doses of morphine following major intra-abdominal surgery being administered during this time.[1] There is little need for narcotics after 48 hours. Exceptions to this usual time course are present in patients who develop certain surgical complications, as infection, and in patients who develop psychic dependence on the drug or the injection per se or the associated care. Such exceptions are rare. Pain of lesser magnitude may persist for variable periods following operation and is readily controlled by non-narcotic analgesics (table 1).

Realizing that narcotics were necessary only during the first 48 postoperative hours, together with the knowledge that most p.r.n. narcotic orders were effective for the duration of hospitalization, Beecher and Keats at the Massachusetts General Hospital attempted to estimate the magnitude of some of these abuses by comparing the amount of morphine a specific group of patients needs to the amount actually received.

**TABLE 1: Frequency of Morphine Administration during 8-hour Period Following 60 Major Intra-abdominal Surgical Procedures**

| Narcotic Doses | Hours Postoperatively | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0–8 | 8–16 | 16–24 | 24–32 | 32–40 | 40–48 | 48+ | Totals |
| No. | 57 | 58 | 39 | 41 | 18 | 18 | 34 | 265 |
| Per cent | 21.5 | 21.9 | 14.7 | 15.5 | 6.8 | 6.8 | 12.8 | 100 |

Thirty ward patients who had uncomplicated cholecystectomies by standard operative procedures under ether anesthesia were allowed to receive 10 mg. of morphine as often as every hour to control pain. They were kept comfortable at all times and given drugs for as long as necessary postoperatively. For comparison, the hospital records of identical groups of ward, semi-private, and private patients were randomly collected and the amount of postoperative morphine they received tabulated. The mean doses of morphine per patient following cholecystectomy in these 4 groups were as follows:

Ward group studied—3.2
Ward group, hospital records—5.6
Semi-private group, hospital records—9.8
Private group, hospital records—13.4

When these data were broken down into time intervals following operation it was found that in the private group 40 per cent of the total narcotics were administered after 48 hours following surgery. Although there are many psychosocial implications in these data, the authors of these reports attributed the prolonged administration of narcotics to nursing practices. For example, some nurses interviewed said they were taught that every postoperative patient must have 2 doses of morphine during the first postoperative night. Some nurses routinely give all postoperative patients a narcotic at 11:00 p.m. to guarantee a quiet night and time for manipulating their cardex.

*Patient variables.* Efforts to correlate severity of postoperative pain with certain characteristics of the patients themselves have been largely un-

**TABLE 2: Relationship Between Dose of Morphine and Incidence of Analgesia Greater than Placebo**[1]

| Dose per 70 Kg. of Body Weight (mg.) | No. of Patients | No. of Doses | Per cent Analgesic Doses Greater Than Placebo |
|---|---|---|---|
| 5 | 56 | 109 | 25.7 |
| 10 | 38 | 71 | 35.2 |
| 15 | 31 | 59 | 37.3 |
| 20 | 18 | 40 | 37.5 |

successful. Most researchers have been unable to correlate the degree of postoperative pain to age, sex, type of anesthesia, duration of anesthesia, previous medical history, previous surgical history, previous hospitalizations, obvious personality types, noticeable personality disorder, or presence of preoperative pain. Pain following surgery seems to be random with regard to obvious patient characteristics.[1]

*Treatment of postoperative pain.* Parenteral injections are the accepted route of drug administration to the postoperative patient. Oral analgesics are not ideal because the disturbances of gastrointestinal function so common following operation result in unpredictable drug absorption. Most analgesics are ineffective via the oral route; the ineffectiveness of morphine by mouth has been noted by many observers, although this fact is still not generally appreciated. Beecher and Keats found that when 10 mg. of morphine, 60 mg. of codeine, 300 mg. of aspirin, and 600 mg. of aspirin were given orally to postoperative patients, the only effective analgesic was 600 mg. of aspirin. Neither morphine nor codeine could be distinguished from a placebo under these circumstances.

Parenterally, no drug that has been adequately studied has been found to produce the analgesia of morphine with less side-reaction than morphine. Based on current information, all available narcotics, with the exception of codeine, will produce adequate postoperative analgesia if given in equivalent dosage, and at this dose the same side-reactions might be expected as with morphine. The analgesic potency of codeine does not equal that of morphine, even with 120 mg., and at this dose codeine is a potent respiratory depressant.

The dose-response curve characteristic of drug action in general applies to the analgesic properties of narcotics.[1] An optimal dose can be determined, exceeding which further increase will not result in a proportional increase in analgesia. For morphine in postoperative pain the dose is 10 mg. (1/6 grain) per 70 Kg. of body weight. The significant increase in side-reactions, such as nausea, vomiting, and respiratory depression, occurs at higher doses in return for small analgesia (table 2).

Pain occurring earlier in the postoperative period is more difficult to relieve than that occurring after 24 hours. Effective pain relief as compared to order of doses shows only 63 per cent relief from the first dose, with effectiveness progressing to 89 per cent by the fourth administration postoperatively (table 3).

**TABLE 3: Incidence of Pain Relief by Morphine According to Order of Postoperative Doses in 198 Patients**[1]

| | Dose No. | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| No. of Administrations | 198 | 119 | 55 | 37 |
| Per cent of Analgesic Doses | 62.6 | 84.0 | 87.3 | 89.2 |

The generally accepted comparison, mg. for mg., is that morphine is 10 times as potent as meperidine, although 10 mg. of morphine probably gives more profound analgesia than 100 mg. of meperidine.

Survey of records from our hospital pharmacy reveals the following statistical relationships between morphine and meperidine. For dosage comparison, figures were compiled on the analgesic equivalent of 10 mg. of morphine = 100 mg. of meperidine.

1. In multiple dose vials meperidine costs almost twice as much as morphine.
2. In the Tubex® the same cost ratio is found.
3. On the general surgical services 3½ times more meperidine is used than morphine.
4. In the recovery room morphine is used twice as frequently as meperidine.
5. Considering all surgical services, meperidine and morphine usage is about equal.

## Summary

A review of the concepts and characteristics of pain was first presented as a background for the discussion of postoperative pain relief. In summary, not all postoperative patients have pain. For those who do, the amount of suffering relieved will depend on the intelligent use of available drugs, good nursing care, and a consideration of the psychologic needs of the patient.

*(Continued on page 542)*

# Ovarian Disgerminoma

## Report of a Case Treated with Actinomycin D, Chlorambucil, and Methotrexate after Massive Irradiation

**LT. COMMANDER AUGUST MIALE, JR., MC, USNR***

*Chemotherapy Branch, Department of Medicine, United States Naval Hospital, Bethesda, Maryland*

**LIEUTENANT KELVIN KESLER, MC, USN**

*Department of Obstetrics and Gynecology, United States Naval Hospital*

GERM-CELL TUMORS of the ovary constitute a small, highly malignant category within the larger framework of ovarian cancer. Disgerminoma is a rarely encountered member of this group and has been thought to be, in some instances, less malignant than embryonal carcinoma, mesoblastoma, mesonephroma ovarii, and choriocarcinoma.[1] All these tumors are believed to arise from a common origin.[2] No proven case of benign disgerminoma has been documented. The established forms of treatment consist of surgery and irradiation, but opinions differ as to the type of surgical procedure and the timing and dose of irradiation.[1, 3, 4] The role of antineoplastic drugs against disgerminoma has not been fully evaluated, although such drugs have been used for treatment of other ovarian cancers.[5] In our case the use of 3 antineoplastic drugs used in combination after intensive postoperative irradiation failed to control the disease.

### Report of Case

P.D., a 22-year-old white, married nulligravida was in good health until June, 1962, when she noted a small lower abdominal mass associated with mild vague abdominal pain. She denied menstrual irregularity. Laparotomy in another institution revealed bilateral ovarian tumor masses and multiple peritoneal implants, and panhysterectomy with bilateral salpingo-oöphorectomy was performed. Microscopic examination of tissue sections revealed disgerminoma. The patient received postoperative cobalt irradiation to the lower abdomen through anterior and posterior ports over a 20 by 20 cm. field amounting to 3,500 r delivered over a 25-day period. Peri-aortic nodes were treated at the same time through anterior and posterior opposing fields of 17 by 19 cm. with 3,500 r up to the diaphragm.

The patient remained well until February, 1963, when dyspnea and right pleural effusion occurred; 2,000 r was given to the right hemithorax with complete remission of the dyspnea and effusion. In June, 1963 a small mass was again noted in the pelvis, and another 3,500 r was delivered over 30 days to the mid-line lower abdominal area with some regression of the mass. However, about 2 months later moderate abdominal swelling appeared, and 2,500 r was again delivered through 18 by 14 cm. posterior and lateral fields. Radiation therapy was tolerated on all occasions relatively well with no more than minimum abdominal cramps, mild anorexia, and occasional loose stools.

On admission to the U.S. Naval Hospital, Bethesda, in late October, 1963 the patient was thin and appeared well developed, complaining of vague low-back discomfort, mild urinary frequency, and occasional hot flashes. Physical examination revealed a loud pleural friction rub on the left. There was no local or general adenopathy. The lower abdomen was slightly protuberant, but liver and spleen were not palpable. A firm, nontender, rounded mass was present in the mid-line, extending 4 to 5 cm. above the pubis. No free fluid was detected. On pelvic examination the vaginal mucosa was normal, but a large extrinsic mass protruded anteriorly into the upper half of the vaginal vault. The tumor could be palpated midway to the umbilicus and to the pelvic walls bilaterally on recto-vaginal examination. The rectum otherwise was normal, and the remainder of the physical examination was not remarkable.

The hemoglobin was 12.6 Gm. and the hematocrit 35, with 5,900 white blood cells with a normal differential, and 155,000 platelets per cu. mm. of blood. Blood sugar, blood urea nitrogen, total protein, serum alkaline phophatase, and frog test for pregnancy were normal or negative. Urinalysis was normal except for 6 to 10 white blood cells. A stool was negative for occult blood. Aspirates of sternal bone marrow showed normal cellularity and erythropoiesis with adequate tissue iron. X-ray films of the chest were normal except for light blunting of the right costophrenic angle. A lateral decubitus view showed a small effusion on the right. An inferior vena cavagram was normal. Barium enema X-ray examination showed a moderate obstruction at the level of the midsigmoid portion of the colon, probably secondary to extrinsic pressure from the tumor mass. Bone survey was negative.

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* Present address: Radioisotope Service, Veterans Administration Hospital, Washington, D.C.

In view of the failure of irradiation to influence the growth of the abdominal mass chemotherapy was instituted in late November, 1963. A course of actinomycin D (3.0 mg.) was given intravenously along with chlorambucil (160 mg.) and Methotrexate® (77.5 mg.) orally, all in divided doses according to the schedule recommended by Li.[6] The patient developed fever, oral ulceration with bleeding, secondary oral monilial infection, complete alopecia, severe anorexia, nausea, vomiting, a drop in white blood cell count from 5,900 to 1,500, a drop in platelets to 2,000, and tarry stools. However, blood transfusion, intravenous penicillin, local oral Mycostatin®, and other supportive therapy controlled the toxic effects, and she improved rapidly and became ambulatory. On the tenth day after drug treatment was started pelvic examination revealed that the large mass had virtually disappeared, leaving some residual thickening and induration of the uterosacral ligaments. Three weeks after treatment no trace of tumor mass could be found in the abdomen by external examination or by careful and repeated pelvic examination by several observers. There was no change in the chest X-ray films, and the pleural friction rub on the left remained unchanged.

Following this remarkable complete regression of the abdominal and pelvic tumor, the patient was afebrile, eating well, and gaining weight and strength, and was discharged to spend the Christmas holidays with her family. At that time the hemoglobin was 10.8 Gm. with a hematocrit of 34, the white blood cell count was 6,000, and the platelet count was 250,000.

In January, 1964 a transient genitourinary tract infection due to *Proteus mirabilis* responded to treatment with tetracycline. In February, 1964 the infection recurred, this time due to *Pseudomonas aeruginosa*, along with mild bilateral pitting edema and left anterior chest pain. A left pleural tap showed bloody fluid, but no malignant cells were found, and the culture was negative. Nitrogen mustard was instilled in the left pleural space on 2 occasions with control of the chest pain and the effusion. No further systemic chemotherapy was given because of anemia and mild leukopenia. The abdominal and pelvic examination failed to reveal any palpable recurrence of tumor masses at that time, but a diagnostic paracentesis revealed a few malignant cells. In late March of 1964 small, soft, tender nodules appeared over the sternal area and the upper abdomen along with a cluster of flat, nontender lymph nodes in the left groin. A specific mass could not be outlined, but there was some fullness and resistance to palpation in the lower abdomen and pelvis. Anemia persisted, the blood urea nitrogen rose to 26 mg. and the serum alkaline phosphatase to 12.4 (Bessie-Lowry) units. Stools were positive for occult blood. An intravenous pyelogram showed no obstruction, but an $I^{131}$ Hippuran® renogram showed slightly decreased renal function bilaterally.

The final admission was in April of 1964 because of pretibial edema, weakness, dyspnea, anorexia, recurrent left pleural effusion, and anemia. Great ascites was present which precluded further evaluation of the abdomen. The blood urea nitrogen rose to 45 mg. Several days later the patient had generalized tonic and clonic seizures which were partially controlled with Dilantin®. However, progressive bilateral flank and back pain developed, the seizures recurred, and she expired quietly early on the morning of April 21.

*Gross autopsy findings*. The left thorax contained 200 ml. of bloody fluid with numerous soft, enlarged lymph nodes in the anterior mediastinum. Several soft, enlarged necrotic nodes were found along the right aspect of the thoracic vertebral column. The right pleural space was filled with dense adhesions involving all but the upper third of the hemithorax. The left lung weighed 240 Gm. and the right 550 Gm. The left apex was mottled gray, and the lower lobe was dark red. Yellow, frothy fluid exuded on pressure after a cut through the lower lobe. The right lung failed to collapse on the cutting board and on cut section had a firm, meaty consistency. A large metastatic tumor mass was attached to the inferior surface of the right diaphragm. Heart, pericardium and great vessels were not remarkable. In the abdominal cavity dense adhesions had accompanied metastatic spread of the tumor, especially in the upper abdomen between the spleen, stomach, liver, transverse colon and pancreas. The first portion of the duodenum was completely encased by a cluster of tumor masses. The liver weighed 1,840 Gm. and was adherent to the right leaf of the diaphragm. No intrahepatic tumor masses were seen on section although numerous small tumor masses were present on the surface. The pancreas appeared normal but was covered externally with tumor masses. The spleen weighed 110 Gm. and was normal on section. All portions of intestine showed scattered soft, greyish-white tumor masses over the serosal surface with extensive involvement of the mesentery. Both adrenal glands were grossly normal, although the right was encased in tumor. Both kidney capsules were grossly involved with tumor, but they stripped easily; the renal parenchyma otherwise was normal on cut section. The pelvis was filled with adhesions, and multiple small necrotic masses of tumor studded the serosa of the bowel and encased the bladder. The exterior and cut surface of brain were grossly normal. Vertebral and rib marrow were dark red, homogeneous, and granular in appearance.

*Microscopic autopsy findings*. The tumor masses consisted of large, rounded cells with pale eosinophilic cytoplasm, large pale basophilic nuclei, and prominent nucleoli. Small foci of lymphocytes were scattered throughout the stroma. Several lymph nodes from the lung hilum, substernum and mesentery revealed extensive invasion by tumor. Necrosis was not a prominent histologic feature. The heart and great vessels were normal. The left lung pleura was markedly thickened and covered with tumor implants. Atelectasis, minimal inflammatory and congestive changes were present in the lower lobe. The right lung was not remarkable except for moderate septal capillary congestion. Both leaves of the diaphragm were extensively infiltrated with tumor. The liver capsule was covered with implants, but the parenchyma was free of tumor except for a few clusters of cells in small hepatic veins. Moderate fatty metamorphosis was present in the liver. The spleen capsule was similarly involved, but one small area of tumor penetration and invasion of the spleen pulp was present. The spleen architecture was otherwise normal. The pancreas was heavily infiltrated and replaced by tumor tissue in some areas. The right adrenal gland contained a few nests of tumor cells. The kidney architecture was intact in spite of multiple implants on the surface. Most glomeruli appeared moderately hyalinized with decreased cellularity. There were scattered areas of calcification around small blood vessels. The large vessels and tubular tissue were not remarkable, although tumor cells were present in the connective tissue around the renal artery and small veins at the hilum. One small nest of tumor cells was present in the kidney parenchyma. The serosa and muscularis of large and small bowel were widely infiltrated with tumor tissue. The mucosa showed some proliferative changes in the colon but was, in general, not remarkable. The urinary bladder wall was extensively invaded by tumor. The vertebral and rib marrow were moderately hypocellular, but maturation appeared normal in each cell series. Sections from several areas of brain showed no evidence of tumor involvement.

## Discussion

In spite of the initial favorable response the disgerminoma in this case ultimately displayed a high degree of radioresistance. The first course of radiotherapy should be considered adequate by Brody's criteria[1] of 3,000 r to the pelvis and inclusion of the periaortic area postoperatively. The early occurrence of right pleural effusion indicated the very widespread nature of the tumor, probably at the time of initial surgery. It might be speculated that even more extensive radiotherapy at the beginning may have yielded a longer remission, but from the start this patient was in a poor prognosis category because of bilateral ovarian involvement and ascites. Direct radiation of the tumor mass later in the course was surprisingly ineffective in securing a longer remission, and as the general condition of the patient deteriorated chemotherapy was given in an attempt to slow the progressive downhill course. Combined treatment with actinomycin D, chlorambucil, and Methotrexate was selected because of the promising results obtained by Li in other germ-cell tumors in males and because no other chemotherapeutic agent or regimen has had clear success in the few instances in which chemotherapy has been attempted in disgerminoma.[5-9] A most optimistic view would suggest that in spite of the considerable toxic effects of these drugs in this patient, a desirable, albeit brief, result was obtained, and she actually survived a total of 22 months from diagnosis. The observed toxic effects were typical of those expected with these drugs.[6] The possibility that complete disappearance of any detectable tumor was a late effect of the last course of radiation therapy cannot be completely excluded. The pelvic and lower abdominal mass continued to enlarge until the drugs were given and then dramatically melted away. We believe this effect was due mostly to the drugs.

An additional point of speculation might be in respect to combined drug and radiation effect. Actinomycin D, along with radiation, is believed to be more effective in some tumors than either alone.[10, 11, 12] However, the drugs were given more than 2 months after the last dose of X-rays in this case. It is difficult to say which agent was the most effective in producing the observed results. It is probable that actinomycin D was a major contributor, even though chlorambucil alone has shown good effects in other ovarian cancers.

The extensive involvement of abdominal organs along with metastases to mediastinal nodes and pleura leaves little doubt that the patient succumbed to a highly malignant tumor. The cause of mild renal failure late in the course remains unclear. It was suspected clinically that the patient had some degree of residual changes of radiation nephritis. The microscopic changes seen in the kidneys are suggestive but do not appear to be sufficient to account for the clinical picture. There was likewise no histologic evidence of chronic radiation pneumonitis in the right lung.

The paucity of cases of disgerminoma will continue to hamper any study of the value of specific antineoplastic agents in various stages of this disease. This is further compounded by the fact that many patients predictably will achieve long-term response to extensive surgery and intensive postoperative radiation over the pelvic and periaortic node areas.[1, 3, 13, 14] Perhaps actinomycin D alone should be tried as an adjunct to radiation at the first sign of recurrence or indication of radioresistance in future cases.

The low incidence of disgerminoma is emphasized by the finding that only 27 cases were collected from the Mayo Clinic files between 1912 and 1959 and 60 cases from a large radiotherapy center in Sweden from 1921 to 1961.[1, 3] Mueller[15] has reported the largest collection of 427 cases. Total reported cases in the world literature up to 1955 were approximately 550.[4] Most experience is limited to small groups of cases or individual reports.[14, 16-19] The incidence of disgerminoma reportedly ranges from 0.7 per cent to 3.7 per cent of all ovarian tumors and is predominantly a disease of young women, with peak incidence in the second and third decade.[1, 3, 15, 20] The present case is the only one which came to autopsy at the Naval Hospital between 1947 and 1964, although 2 other cases are recorded. One was in a 28-year-old woman with involvement of the right ovary and the other in an 18-year-old female with generalized metastases. Both were discharged and subsequently treated elsewhere, and follow-up records are not available. Survival statistics in disgerminoma vary from 12.5 to 66.6 per cent.[1, 15, 20] This is difficult to evaluate because of the variability in case material. Brody[1] has pointed out that in a series of disgerminoma patients treated more than 5 years ago only 9 per cent survived 5 years if the recurrences were apparent within 2 months of surgery, and 33 per cent survived 5 years if recurrences appeared up to 6 months postoperatively. The duration between treatment and recurrence may be very useful prognostically.[1] The average survival for all types of primary ovarian carcinoma is about 40 per cent up to 2 years after diagnosis.[21]

Over the years the most desirable surgical approach has been debated, but current opinion indicates that bilateral salpingo-oöphorectomy and hysterectomy is now the most effective procedure.[1, 3, 4, 17, 19] Much of the controversy was due to the lack of universal agreement as to the degree of malignancy of this tumor and, as a result, a wide range of 5-year survival rates were reported.[17, 19] At present there is little disagreement about the considerable malignant potential of this tumor, yet a number of enthusiastic reports have indicated that cure is possible after conservative or aggressive surgery and radiation therapy and that excellent palliation with prolonged survival can be achieved despite repeated recurrences and distant metastases.[13, 14] It would appear likely that histologic identity does not necessarily imply a similarity in clinical behavior of any 2 given cases of disgerminoma. Therefore, in a given instance the disease may behave in a relatively benign or profoundly malignant manner. The histologic similarity to testicular seminoma has been pointed out and the parallel in radiosensitivity recognized.[2, 22, 23]

The role of radiation therapy in addition to surgery in patients with disgerminoma recently has been emphasized and clarified.[1, 3] Earlier views held that postoperative radiation should be employed only when known tumor is left at operation or when a recurrence is found.[13, 17] Thoeny et al[3] have concluded from their series that postoperative irradiation should be routine in all cases. Brody[1] has arrived at the same conclusion but, in addition, has made a strong case for more extensive pelvic and abdominal coverage, particularly in the periaortic node area. He also has some data which indicate that a conservative surgical approach with intensive localized radiotherapy may be justified in some cases if preservation of fertility is an important factor. However, the incidence of recurrences in this group would indicate that this approach is not ideal.

## Summary

The clinical features and postmortem findings in a case of disgerminoma in a 22-year-old white woman have been described in which recurrences and metastases developed in spite of massive pelvic and abdominal irradiation. An attempt to secure long-term palliation with a combination of actinomycin D, chlorambucil and Methotrexate resulted in dramatic regression of a large pelvic tumor mass. The total survival period was 22 months. It is clear from previous reports that disgerminoma can be a radiosensitive and radiocurable tumor, but there remains that group of patients who respond poorly to surgery and irradiation and in whom some form of palliation is desirable. Antineoplastic drugs show some effectiveness against disgerminoma and deserve wider trial. Current concepts regarding the role of surgery and radiotherapy in this disease have been reviewed.

(*Continued on page 542*)

# PRESIDENT'S PAGE

## WHAT THE MEDICAL SOCIETY HAS LOST AND GAINED

Younger members may find the relationship which once existed between the Medical Society and physicians in Washington of interest. I entered practice about the time the older physicians of the generation before World War II were departing from the medical scene. But I recall hearing a great deal about their allegiance to and sentimental feeling about the Society.

The Society began to flourish as a center of medical activity in the city following the erection in 1921 of its handsome building at 1718 M Street, Northwest. Weekly meetings, which were held on Wednesday nights, were missed by very few members. Following the scientific program there was usually a social hour in the library. Here, lasting friendships were formed and a close bond between the Medical Society and its membership forged.

How strong was this attachment? Dr. Sterling Ruffin was one of Washington's most distinguished physicians 30 years ago. The Medical Society and many of its members were close to his heart; in fact, so much so that he provided in his will for a substantial bequest to the Society to be used to assist physicians in distress. Others who made bequests were Drs. Edward Young Davidson (he was largely responsible for the erection of the present building), George M. Kober and Charles Stanley White. Another physician of that period who is still with us, Dr. Frank M. McChesney, has sent in substantial sums as a show of gratitude for what the Society meant to him. One of the most generous where the Society was concerned was Dr. Oscar B. Hunter, Sr. He never failed to lend financial support when needed.

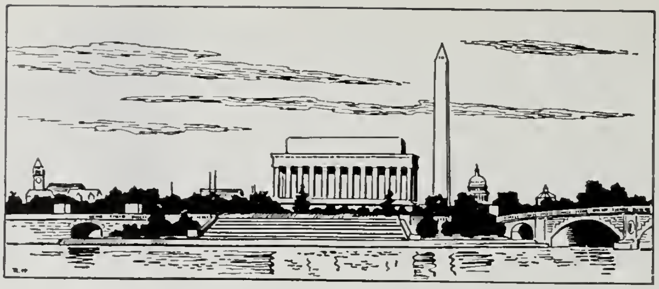
Most present members have perhaps not noticed the small brass plates attached to the back of the seats in the Society's auditorium. They bear the names of individuals who purchased seats at the time the building was put up. Some years ago the widow of an older physician called and said she would like to buy a plate if it could be placed on the chair next to that of her husband's close friend. This was done.

Many medical societies have established foundations into which physicians, their friends, patients, and others can give or will gifts of money tax-free. These funds are used for a variety of public service projects.

Your Executive Board has established such a foundation entitled "Health Foundation of D. C." The purposes are to encompass a wide group of medical, scientific and health programs to benefit the citizens of Washington. The first funds to be included are those remaining from the Polio Program. Hereafter we hope many physicians will see fit to contribute through grants or bequests. Many things arise of a public service nature that our Society should initiate or participate in; perhaps this Foundation will prove our vehicle for so doing.

In the march of progress the Medical Society has lost much of the personal relationship which once existed. This was to be expected in view of the increased medical population following World War II. Yet, let me add that there never has been a time when loyalty to the Society was greater and its accomplishments more to its credit than at present. Nevertheless, we can be grateful for the period in our history when life was simpler and fraternity in our profession ran a close second to the pursuit of medical knowledge.

Edward W. Nicklas



# EDITORIALS

## The Grievance Committee

The Grievance Committee is a standing committee constitutionally created and is an arm of the Medical Society of the District of Columbia. Its purpose is to adjudicate grievances between patient and doctor, and at times between physician and physicians, and to improve the ethics of our profession, as well as public relations between patient and physician.

The Committee consists of 12 members and a chairman, each appointed by the President of the Society and approved by its Executive Board for a term of 3 years. It has punitive powers in the sense that it may recommend to the Executive Board, based on thorough investigation in any given case—even to the point of obtaining the opinion of experts, that a member guilty of gross breach of medical ethics be reprimanded, censured, or expelled. The final disposition lies in the hands of the Executive Board. The Committee meets once a month, on the third Tuesday, and its membership is so dedicated that there is very little absenteeism. The membership consists of men of high standing, intelligence, and fairness, and the various specialties are fairly well represented.

I should like to state that for every case that appears before us for consideration there are many, many situations, sometimes rather embarrassing, which have been resolved by the Chairman, with the help of one or more members or officers of the Society, by meeting with or by a telephone call to the parties involved. Most of these cases are based on misunderstanding. Numerous instances in which malpractice suits would have been instituted were averted by this method.

What then are our problems (and I use the word "our" to include the entire profession of medicine)? Ours is a learned profession. The individual physician by and large remains sympathetic, kind, and dedicated to his work and his patients. These men and women are endowed with a great deal of patience. I am sure that many of us have experienced sleepless nights, stress, and concern about the welfare of another human being. There are certainly many instances in which a physician has attended the sick when he himself at that time was the more seriously ill. I believe that we are one of the few remaining professions in which an individual gives so much of his life to his education and training and who expends so much energy in his work. There are many physicians in this country who work a 60-hour week, who have little time for their families, and who die prematurely from stress and overwork.

There are a few practitioners, as in all professions, who for the sake of money do things which reflect adversely on their profession. For instance, there is the doctor who agrees on a $200.00 fee for prenatal, delivery, and postnatal care. Comes time of delivery and he is on vacation. The man who covers for him is unable to deliver the patient because of a complication, and an obstetrician is called to perform a cesarean. So we have a situation where 2 physicians took care of 1 patient, neither of whom delivered her, yet the original practitioner insists upon his full fee. Or take the case of a well-trained internist who charges $295 for a simple work-up on a relatively normal patient, spending 1½ hours with the patient and

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* This editorial was submitted by the Chairman of this Committee in response to a request from the President of the Medical Society that he describe its functions and activities for readers of the Annals.

*Opinions expressed in contributions to the Editorial Section are those of the writers and do not necessarily reflect the views of the Medical Society of the District of Columbia*

itemizing the fee as follows: $10 for physical examination, $285 for laboratory procedures done that morning; or the case of another practitioner who automatically performs, or has his technician perform, a battery of tests followed by treatment of a simple illness, followed in turn by repetitive tests at stated intervals with very little relation to the nature of the disease or the drug used. Or the internist who has developed a policy that when a new patient appears in his office the history is obtained by a secretary and a long and involved laboratory work-up, including frequently a complete gastrointestinal series, is done routinely before the doctor even lays eyes on the patient. Or another internist who on a 27-year-old man does prostatic massages 2 to 3 times a week for a period of several months, and who does innumerable Pap smears on a patient who has a simple fibroid. Or a man who takes it upon himself to be an expert in all branches of medicine and consequently is ready and willing to testify in various courts against ethical men who have practiced excellent medicine, all this for the sake of a few dollars.

I could go on with more instances, but I believe this will suffice to illustrate some of the problems confronting us because of the actions of a few. It is my opinion and the unanimous opinion of the Committee that men such as these should not be permitted to practice, for they are an insult to the medical schools which trained them and to the oath which they took upon graduation, and are a disgrace to the thousands upon thousands of serious, able, dedicated, hard-working men and women of this profession who have given so much of themselves to the welfare of humanity.

We must not permit these parasitic money-grabbers to besmirch the dignity of our profession.

Irving Burka, M.D.
*Chairman, Grievance Committee*

## Please Label as to Contents

"Please label as to contents." These 5 words on every prescription can avert confusion, help the patient understand his illness and its treatment more fully, and provide another physician with necessary information at any time.

Less than a generation ago it was considered improper to tell the patient the nature of his medicine. The mystery of the Latin name, the piquance of the odor, and the bitterness of taste all added to the "magical" healing powers of our potions. Besides, this prevented the patient from becoming too inquisitive and even challenging the doctor's judgment in selecting a particular elixir.

Mystery and magic have largely vanished from drug therapy, however. We can now use medications which are quite specific in their actions. Even those with "nonspecific, anti-inflammatory actions" are backed by sufficient testing and study to warrant our confidence. We no longer need to hide their names or composition from the patient.

Our patients have changed, too. They have become more sophisticated than ever before regarding their own bodies and illnesses. Not only do they have more basic knowledge of physiology, but they also read more. The popular magazines and daily newspapers keep them remarkably up-to-date. They do discuss their treatment, and they are no longer satisfied with remedies unknown to them or unexplained. We should be aware that satisfaction is part of successful treatment.

When the patient consults another physician he should be able to indicate precisely what medicine he has been taking and in what dosage form. How unnerving it is to watch a lady from out of town carefully unload all the medicines from her pocketbook onto your desk. You know she expects you to recognize each—and you know you never will.

Wrestling with the size-shape-color guide issued by the AMA will convince you after the first hour that you are incompetent, inept, and unable to follow directions. Somehow, the pill you carefully measured in all diameters, crushed and examined, fits none of those named. Sometimes it could be any of several.

It is even hard to keep track of all the medications your own patients are taking. It is bad enough in the office when someone asks, "Should I keep on taking the orange pill?" You wonder if he means the Tetracyn® or the Vi-Dexemin.® When he calls you at home, though, and asks the same question, there is often no answer. How much easier it would be if he asked, "Shall I continue the Tetracyn?"

It will save the physician's time and avoid needless confusion if prescription blanks are printed with these 5 extra words: "Please label as to contents."

Robert R. Montgomery, M.D.

## Physicians Needed for Diabetes Drive

The Diabetes Association of the District of Columbia, in conjunction with the Lay Society, its nonprofessional component, will conduct the annual Diabetes Detection Drive the week of November 15 to 21, 1964. Dr. W. Luther Hall, President of the professional society, and Robert Curran, Esq., Chairman of the Lay Committee for the Detection Drive, will coördinate their efforts toward making the Drive the success it can and should be.

The coöperation of Parent-Teachers Associations, the various utility companies in the District of Columbia, and Government agencies, particularly those with active medical departments, will be enlisted.

All physicians are urged to assist in this Drive. Those physicians in whose offices facilities are available for urine testing are urged to request all of their patients to submit specimens of urine for determination of the presence of glycosuria, without charge, during the week of November 15 to 21. A telephone number will soon be announced to which a report may be made of the number of tests performed and the results obtained.

The coöperation of physicians is imperative for the success of the Drive, not only for procuring and testing urine specimens but also for impressing upon the public that we physicians consider the detection of the thousands of hitherto unknown diabetics a significant step forward in the maintenance of the health of our community.

Adolph Friedman, M.D.

## Health Dept. Notes

### Immunization in the District

The Department of Public Health has entered the action phase of its program to raise immunization levels in the District of Columbia.

During the past year departmental staff have analyzed the degree of immunization of population groups within the District. They have determined that certain segments, by age and sex, are poorly protected against preventable diseases. It was also found that certain areas were particularly low in this protection.

It was this same earlier finding on a national scale that prompted Congress to pass the Vaccination Assistance Act of 1962. Through this, funds are made available to state and local health jurisdictions to install new and to improve existing programs of immunizations. The District's first year of participation in this Act produced the study which is the basis for the present operational program.

**W. B. SAUNDERS COMPANY features** the following new books in their full-page advertisement appearing elsewhere in this issue:

**DOCTOR'S EASACCOUNT RECORD SYSTEM:** New!—A financial record-keeping system tailored specifically to the requirements of physicians.

**Hughes—PEDIATRIC PROCEDURES:** New! —Step-by-step instructions on scores of management procedures for child patients.

**Bates and Christie—RESPIRATORY FUNCTION IN DISEASE:** New!—A valuable aid in managing those patients suffering from lung conditions.

The Act requires that its benefits go first to infants and children under the age of 5. The vaccination emphasis in the District will therefore be on diphtheria, pertussis and tetanus, and, as appropriate, on poliomyelitis and smallpox.

Although the target population will be younger children, it is apparent that a sustained campaign to increase immunization in D.C. will benefit all residents of the District. It should make all vaccination efforts more effective.

The Department's program for the next year will offer more vaccination service at present clinics and call for special vaccination clinics at selected locations, the latter in areas of low protection. There will be stepped-up activity in public education on the need for immunization, with efforts applied directly in these selected neighborhoods.

To ensure that polio immunity is as complete and widespread as possible, the Department will make the new trivalent oral vaccine available to local physicians through Vaccination Aid funds. The program will thereby reach those persons in the District who receive vaccination from their own physician rather than from departmental clinics.

It is the Department's intention to make full use of this opportunity to improve all levels of immunization in the District and to generate public interest in the need for vaccination.

Murray Grant, M.D., D.P.H.
*D.C. Director of Public Health*

# ANNUAL REPORTS

## Report of the Chairman of the Executive Board

Your Executive Board, now increased to 10 voting members by action of the Society last year, has held 14 meetings since the last Annual Meeting. If you have any idea that Board membership is a simple task, let me dispel this by pointing out that each meeting lasted from 7:30 p.m. to no earlier than 11:30 p.m.

Committees have held 150 meetings so far this year and will hold some 30 more by New Year's Day. It is our hope that beginning next year those Committees which have been active will make their own annual reports. Until this occurs, and since the Executive Board minutes are summarized in the Medical Annals, this report and the Secretary-Treasurer's report will provide a brief résumé of some of the committee problems and activities.

### Committee Structure

Committee structure remained as before, but the President, with Executive Board approval, added several new committees. These are a Subcommittee on Smoking, Committee on Hospital Relations, Liaison with Allied Professions, Liaison with Federal Agencies, Liaison with Voluntary Health Agencies, Medicolegal Problems, Medical School Relations, Medicine in Sports, and Physician Placement.

The new committees that were created to develop liaison with the hospitals, allied professions, Federal agencies, voluntary health agencies, the Bar Association, and medical schools are not in any way to be considered investigative, but, rather, they were set up to develop better relationships between the Medical Society and each group and to assist or seek assistance where matters of mutual interest or concern arise. It is expected that the accomplishment of this task will take several years.

### Polio Committee

Probably the most publicized activity was the Polio Drive conducted by an Ad Hoc Committee composed of representatives of numerous committees and chaired by Dr. Marvin C. Korengold. The Committee met at least 17 times, including 9 Sunday mornings. Every one of the (approximately) 275 physicians who helped out deserves a gold star. Special accolade goes to Dr. Korengold who masterminded the hundreds of intricate details; your President, Dr. Nicklas, who stood beside him for the 14 weeks' program; and Dr. Robert H. Parrott, who had many tough technical decisions to make. The Woman's Auxiliary was also invaluable, thanks to Mrs. Jonathan Williams. There are others who deserve special thanks for a job "well done," including Jim Forsythe of Pfizer Company, John McHugh of the D.C. Pharmaceutical Association, Drs. Sidney Greenspan and A. J. Zeller of the D.C. Dental Society, Dr. John R. Pate of the D.C. Health Department, and Miss Grace Matthews, also of the Health Department, who recruited the registered nurses so vital to the program.

If I have omitted anyone, it is not intentional. The Polio Program was a rough, tough job benefiting the public and the Medical Society. We should all express a heartfelt "thank you" to all who participated and reiterate the President's question, "Where were you?" to those who did not help.

From the experience of other medical societies it was anticipated that some surplus funds would remain after all program expenses were paid which could be used for other public service projects. It is anticipated that the surplus will be in the neighborhood of $50,000, and for the purpose of assuring its use in public service we have created the Health Foundation of D.C. On the Board of Directors of this Foundation will be representatives from dentistry, nursing and pharmacy as well as medicine.

The Polio Program may have been the most publicized activity of any Society committee but many members also worked diligently on other committee projects.

### Public Health Committee

The Public Health Committee, Dr. Harold M. Hobart, Chairman, had its problems trying to evaluate the many projects proposed by the Director of the District Department of Public Health. Dr. Grant's changes and proposals are so many and varied that the Committee and Executive Board are faced with the problem of establishing a policy for this Society regarding its attitude toward "public health" and the proper functions of a Public Health Department in the field of medical care.

### Medicolegal Committee

The Medicolegal Committee, Dr. Alfred A. J. Den, Chairman, has begun serious study of why professional liability rates in the District of Columbia are almost twice those of Maryland and about 3 times those of Virginia, yet all 3 are covered by the same company. The Committee has also written and submitted a suggested "Good Samaritan" law to Congress and is working with a Committee of the Bar Association on various problems, including an impartial panel for personal liability suits.

### House Committee

All of you who take the time to read your Society mailings know by now that 1710 and 1718 M Street, N.W. have been sold and 8,500 sq. ft. at 2005–07–09 Eye Street, N.W. have been purchased. Also this Committee has, with approval of the Executive Board, selected an architect, prepared final building plans, and waded through the maze of offices of the Distrct Government to obtain proper permits, variations, and approvals.

Final plans call for a 4-story building, with rental space sufficient to carry any loan required for the building of an additional floor. This, of course, was one of the reasons for the Special Society Meeting on June 17, 1964, at which time the 4 stories were approved. The usual penthouse for air-conditioning and other mechanical equipment is designed to give the illusion of a fifth floor, resulting in a building of reasonable height, which will appear in proper balance with projected adjoining buildings of 8 to 10 stories.

Again, it should be understood that parking will be limited generally to the Society committees with special arrangements made for other groups when possible. Yet, ample additional parking is available nearby, and for some 500 members the new site is within walking distance of their offices.

Next year at this time, it is our hope—and plan—that this Annual Meeting will be held in a new Society building. A full breakdown on costs should be available by the November 15 meeting of this year and will be contained in a supplemental Executive Board Report.

### Grievance Committee

Public awareness of the existence of a committee to which patients may turn when aggrieved, rightly or wrongfully, by their physicians' actions or charges has increased the work of this Committee. Since November 1963, 39 grievances have been considered.

Most cases are really annoyances with the physician which could have been avoided with a bit of thought and consideration.

A few, however, are serious enough to warrant recommendation for disciplinary action. The Executive Board considered 4 such cases during the first 9 months, and 1 case is pending.

The Chairman, Dr. Irving Burka, has submitted an editorial to the ANNALS delineating the concise attitude of the Committee toward those few physicians who continue to violate standards of good ethical medical practice. The Executive Board intends to support the Committee in disciplinary action or the expulsion of those members who continue to disregard the precepts of our profession.

### Review Board for Prepaid Medical Care Benefits

Dr. O. Hugh Fulcher, Chairman, and the Review Board members have continued their unenviable but essential task of reviewing cases referred by Medical Service of D.C. and the Health Insurance Council. During the first 9 months of the year 176 cases were reviewed, with 3 physicians appearing to appeal the Board's decisions.

During the year the Board's "operational procedures" have been reviewed carefully and specific procedures or "guidelines" are being developed to assist the Board in determining "usual and customary fees" for this area, with due consideration to special circumstances where they exist.

The Executive Board is in full accord, with the philosophy—and policy—of private medical practice, but it also recognizes that even in our profession there is an element, and a strong one, of "public interest" which physicians must consider in their charges. Medicine's "public image" is not sufficiently high to warrant permitting flagrant deviations from reasonableness. The decisions of the Review Board do not always please the physicians involved; but, despite our desire for freedom in medical practice we do need to exercise sound judgment in the economic side of our practice.

### Group Insurance

One of the benefits available through associations is that of group purchasing of insurance. We have, at this time, a sound group disability insurance program which may be supplemented by the new AMA program. The Insurance Committee is reviewing the Society-approved life insurance program. This is not a group policy and has not proved to be of continuing value to the Society. The Committee hopes to come up with a group policy that will be so attractive that every new member as well as most of the present members cannot afford to be without it.

Other group programs are also under consideration including an "overhead office expense" policy and others where group purchasing is an advantage.

### Representatives to Conferences

One of the deficiencies of this Society has been its lack of representation at national and regional meetings sponsored by the AMA for state and local medical societies. The Executive Board is attempting to remedy this and has provided financial assistance for attendance at more such meetings. So far this year over 10 physicians have been sent to national and regional meetings, mostly those of the AMA.

### Constitution and By-laws

This Committee has worked diligently on a revision of the Constitution and By-laws to clarify certain provisions and rearrange others. There are 3 important revisions: (1) changes concerning Active, Affiliate, and Associate membership; (2) the creation of Councils as Standing Committees with committees grouped under these Councils; and (3) an increase in annual dues. Copies of the proposed revisions will be sent to each Active, Special and Life member.

The dues increase for Active members from $70 to $85 is essential, as outlined in the report of the Secretary-Treasurer. For years this Society has been unable to adequately staff its executive office, finance the work of committees, provide travel of officers and committee chairmen to AMA and other meetings, and carry on any type of public relations program. An increase of $15 a year will not solve all these problems but it will help to bring this Society within reasonable range of the progress of other societies.

Every member should consider seriously the Board's recommendations, and we hope for your support in their approval.

### Awards

Each year the Committee on Public Information and Education circularizes the membership for nominations for the 3 Society awards. This year the response was most encouraging, with some 30 names submitted from which to make the selections. On recommendation of this Committee the Executive Board approved the following:

The Certificate of Meritorious Service will be awarded to 2 of our members who have contributed so much to the profession over many years: Dr. William B. Walsh for his work with Project Hope and Dr. Peter D. Comanduras for his work with Medico.

Dr. Korengold was selected to receive the Community Service Award. His months of dedication to make the Sabin Oral Polio Vaccine Program a success made his selection almost a must.

Mrs. James Lawrence Houghteling was selected to receive the John Benjamin Nichols Award, which is given each year to a lay person or lay group for outstanding service in the field of health. Mrs. Houghteling has been active as President and board member of many civic organizations, including the Washington Home for Incurables, the American Red Cross, the D.C. Division of the American Cancer Society, and the Visiting Nurses Association.

### Medical-Dental Business Research Foundation, Inc.

This Society has not in the past assisted in the creation or development of programs in the field of medical economics other than Medical Service of D.C. With the widespread use of electronic equipment, and with a number of our members and members of the Dental Society interested in applying electronic equipment to their billing services, a new nonprofit corporation entitled Medical-Dental Business Research Foundation, Inc. was created this year. Its first project has been to install a billing service. This was inaugurated in August following a questionnaire to both physicians and dentists to determine their interest in such a project. With several hundred potential users the project is slow in developing, but, with the use of several creative ideas it should prove to be a most useful and inexpensive system for facilitating the billing services of both professional groups.

### Instructions to AMA Delegates

Three matters of business brought before the AMA House of Delegates in June 1964 were deferred pending study and state association reaction. At this time, our Delegates should be instructed in regard to them.

1. Resolution (15) on Rapid Communication System (Alabama delegation): "That the Board of Trustees be requested to study the feasibility

and be empowered to establish a teletype or comparable network between the AMA and those state offices where justified."

In the estimation of your Executive Board no justification for such a communications system has been shown nor could any such system replace the telephone which is available to all state associations and is far more suitable. Teletype would entail large sums of money; also, if it were not to include every state association, would require almost impossible decisions as to which states are important enough to warrant such contact.

It is *recommended* that the Delegates of this Society oppose the installation of any such system.

2. Resolution (55) on Utilizing the Talents of Dr. Annis (Minnesota delegation): "That the House of Delegates urge the Board of Trustees, at the conclusion of the term of office of Dr. Annis, to find a means of utilizing his fine talents along the lines of his proven abilities; and that the Board of Trustees also be urged to explore avenues whereby the services of an able spokesman for medicine and a freedom-loving public will always be available on a permanent basis in the future to the organization of physicians in the United States."

All of us are aware of the fine speaking talents of Dr. Annis, who certainly served the profession admirably during his term as President. Your Executive Board is mindful, however, of the fact that the elected officers of the AMA are and should be the spokesmen for the profession. One time, not many years ago, this function was assumed by a full-time AMA employee. This did not prove satisfactory and we do not believe a return to this plan would be in the best interests of the profession. AMA now has several highly paid executives to conduct assigned duties. In fact, the AMA staff has grown in numbers and cost, requiring increases in dues from $25 to $45, to the financial detriment of the constituent and component societies.

It is *recommended* by your Executive Board that this Society's Delegates oppose Resolution 55 and urge that if the services of Dr. Annis or any other physician are required, beyond the usual time given by AMA Council and Committee members, that they be reimbursed in the same manner as the Board of Trustees.

3. Increase in AMA Dues. It was proposed by the President that AMA dues be increased from $45 annually to $65 in 1965; $85 in 1966; and $100 in 1967.

This suggestion was probably to compensate in part for items 1 and 2 above, and also to expand all AMA staff and activities.

The problems of medicine are not solved by the AMA. At this time the urgency is not in expanding the AMA but in strengthening the state and local medical societies. With few exceptions these societies find finances their biggest problem. The AMA Financial Report for 1963 showed that in that year $1,356,000 more was collected than paid out and that present operating reserves are $4,285,454. Yet many if not most state and local societies find it difficult to even have balanced budgets. At present many societies are unable to follow through or implement even the present programs requested by the AMA. The need is to increase state and local dues, not AMA dues.

It is *recommended* by the Executive Board of this Society that the Delegates oppose any increase in AMA dues.

Respectfully submitted,
Victor R. Alfaro, M.D.
*Chairman, Executive Board*

## Report of the Board of Credentials

The Board of Credentials inquires into the qualifications of all applicants for membership and makes its recommendations to the Executive Board. On the recommendation of this Board the Society last year approved an increase in the number of members from 3 to 6. This has been a great help, lightening the load of monthly meetings which usually last 2 hours or more in order to interview each applicant.

Since the last Annual Meeting, 127 applicants have been interviewed, with every one being approved for Executive Board consideration. While the task is sometimes a tedious one, it is also a rewarding one. Our only request at this time is that every Society member urge those of our colleagues who are qualified, yet are not members, to submit their applications.

Respectfully submitted,
Luther W. Gray, M.D., *Chairman* (1964)
Louis J. Goffredi, M.D. (1964)
Leslie E. Hedgepath, M.D. (1965)
Lawrence A. Rapee, M.D. (1965)
Philip R. James, M.D. (1966)
Michael J. McInerney, M.D. (1966)

# Report of the Secretary-Treasurer

THE TERM Secretary-Treasurer is a rather important-sounding title, like the Vice President of a bank. The duties are as varied as those of bank vice presidents, but all channeled to one office. Every medical society executive will vouch for the fact that during any one year he may act as maintenance man, carpenter, picture-hanger, file clerk or furniture-mover, on the one hand, and, on the other, medical economics expert, committee or local agency advisor, source of advice and assistance in most any field, or even confidential listener to so-called "secret tales." It's an amazing, interesting, and rewarding position.

### Membership

One of the primary concerns of any medical society is its membership—the number, their interests, their loyalties, their demands.

Washington and its environs constitute one of the fastest growing metropolitan areas in the Nation, but the District of Columbia itself has not contributed to this growth. In fact, it has lost population and is not expected to return to its 1950 level of 802,178 until some time after 1970. The population of the "environs," on the other hand, quadrupled between 1950 and 1960 and their rate of growth continues.

These population changes have been slow in affecting the District but are slowly but surely being felt. The rapid growth in our Active membership following World War II, from 856 in 1943 to 1,338 in 1963, has slowed down to almost a static situation. At the same time the memberships of surrounding societies continue to increase rapidly.

In the 6 years since 1958 the total membership has grown from 2,124 to 2,313 and Active membership from 1,437 to 1,535. This is in complete contrast to most medical societies where the membership in the city proper may have grown slowly but the growth in their "environs," which are a part of those medical societies, has contributed to substantial growth in the Society membership.

This lack of growth in the membership reflects on the ability of the Society to maintain a status quo in dues. With a continually expanding economy either more members pay the same dues in order to increase income, or the same number of members pay more dues. Many societies are in the former category, while this Society and a few others are in the latter.

### Society Finances and Activities

The Society's bookkeeping department handles over a half million dollars each year. Without analysis this would seem to indicate a well-to-do organization with plenty to spend. However, less than $100,000 of this total is available for general Society operating expenses: personnel, maintenance, and committee activities. The other $400,000 is distributed as follows: BUREAU operation, $130,000; MEDICAL ANNALS, $50,000, of which $15,000 to $20,000 is a subsidy from dues; members' Blue Cross-Blue Shield, $140,000; AMA dues and AMERF, $60,000; the SCIENTIFIC ASSEMBLY, $15,000; and reimbursable services to members, $5,000. All are services to the membership but require staff, time, and constant attention.

Since 1958 the Active membership and, therefore, the dues have remained almost constant, with between $110,000 and $115,000 available to operate the Society and support the MEDICAL ANNALS. In the face of increased costs for almost all elements of operations—personnel, equipment, materials, the MEDICAL ANNALS loss, expanding Social Security taxes, and the need to provide funds to permit the officers and committees to do a better job, the only solution during the past several years has been to: (a) maintain a salary scale inadequate to attract competent personnel; (b) reduce the number of personnel; (c) continue to use old and inefficient equipment; (d) cut back on materials; and (e) reduce travel of staff, officers, delegates and committee members. A combination of (a) through (d) has been used to keep within income. Category (e) has not been reduced and really needs to be increased if this Society wishes to keep abreast of activities carried on by other societies. Learning by officers and committee chairmen from other societies is as important to Medical Society progress as is continued medical learning to a physician.

We cannot hope to meet Federal Government salaries (increased 25 per cent since 1958); however, to attract and hold even reasonably competent personnel over a long period of time will require an additional $15,000 annually. This will permit development of an incentive salary plan extending over at least a 5-year period.

The old and inefficient hand bookkeeping system to handle a half-million dollars is being corrected by the introduction of new methods. A new duplicating (photocopy) machine has proved

THE GIBSON COMPANY
*59 years serving the medical profession*
*New Address*
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Federal 8-2688
Medical and Surgical Supplies
Hospital, Invalid and Sickroom Supplies
Surgical Fitting Specialists

invaluable to the Executive Board and Committees in providing material for their meetings. Consideration is being given to modern bookkeeping and billing equipment. Our reserve funds have so far financed these improvements and should continue to do so if dues are raised. Consideration is also being given to placing membership records on IBM cards. This would facilitate the billing for Society dues, AMA dues, and MEDICAL BUREAU statements, as well as the mailing of material sent out by the Society, its many Sections, and members who use these services.

To permit even reasonable travel and activity of officers, committee chairmen and committee members, to provide working funds for the committees themselves, and to carry on a minimum of public relations activities require another $7,500 annually. At present inadequate funds are available to provide for committee representation even at AMA-sponsored meetings and to assist committees in studies of the problems they consider; none is available for publishing their reports or conclusions or for conducting a public information program.

I have, therefore, recommended a raise in dues of $15 per year, to a total of $85. This is still far below the county and state dues paid by members of any city of comparable size in the United States and will allow this Society to do at least a few of the things most medical societies have done for years, including some planned public relations programs.

### Medical Annals

The financial plight of the MEDICAL ANNALS continues to defy solution. We are not alone in this, since almost every medical society publishing a scientific journal is in the same position, with all losing national pharmaceutical advertising to the national publications.

In contrast to a net profit of $1,500 in 1959 the 1961 ANNALS required almost $20,000 from dues to pay costs; in 1963 production changes reduced this to $17,000 and would have reduced losses to $10,000 had not national advertising continued to decline. To meet this problem the average number of printed pages per issue was reduced from 122 in 1962 to 100.6 in 1963, to 93.5 for 1964, and I have recommended 84 pages for 1965. National advertising (through the State Medical Journal Advertising Bureau) continues to drop, cancelling out the savings resulting from a reduction in pages and other production changes. Unless national advertising improves or our average page production is further reduced as recommended, the subsidy from dues will again rise to nearly $20,000. The same alternative is before other state societies and is being met by reduction in size, change in printers, and a variety of other approaches.

If this reduction in the size of the MEDICAL ANNALS does not bring costs within reason, I shall recommend seeking a printer who can produce a good journal at less cost.

The Editor, Dr. Yater, and Assistant Editor, Miss Eckburg, have been most coöperative in seeking to keep costs within reason and still maintain a quality publication. Since the MEDICAL ANNALS should cost our members no more than the amount it costs an outside subscriber ($4.50 per year), our goal is to reduce the difference between income and costs to no more than $10,000, or $4.50 per member. Even this is above the allocations by most societies, which range from a net profit to about $2.50 per member.

### The Medical Bureau

The MEDICAL BUREAU is an indespensable service to almost 800 physicians, their patients, the public generally, and many allied organizations requiring a 24-hour, 7-day-week service. Its problems are multiple, ranging from physicians who disappear for days or refuse to accept their calls to unbalanced patients and alcoholics and dope addicts. In between, the problems seem endless.

Last year the dues to BUREAU members were raised to increase the number and salaries of operators and to make some basic changes in BUREAU operations. These have been done with the help and advice of Dr. Charles P. Ryland and the Medical Bureau Committee. There will always be errors and peak load periods when answering

(*Continued on page 529*)

# OFFICIAL PROGRAM

## *Thirty-second Annual Scientific Assembly of the Medical Society of the District of Columbia*

*NOVEMBER 16–17–18, 1964*

*Statler-Hilton Hotel*

*WASHINGTON, D.C.*

# *ARE YOU SET TO "GET AWAY"?*

Our Annual Scientific Assembly is invariably an excellent meeting, and this one, thanks to our hard-working committees and staff, we can feel proud of, because I know it will be outstanding.

We physicians can usually get away from our practices to attend medical meetings out of Washington when we want to. Let us plan now to lighten our schedules on the days of the Assembly, November 16, 17 and 18, in order to "get away" to attend as many of the meetings and exhibits as we can.

This is an excellent opportunity to learn of recent scientific achievements in our various fields of interest and to hear prominent speakers, "tops" in their fields, who have come to Washington to share their scientific knowledge and some of their experiences with us.

It will be well worth your time, I assure you!

Edward W. Nicklas

President, The Medical Society
of the District of Columbia

Each year a few Society members are assigned the task of preparing a program for the Scientific Assembly. To make the sessions interesting and yet varied enough to attract different groups of physicians is a tough nut to crack. I hope we have succeeded. The topics are attractive, the participants qualified, the exhibits will be productive, and the motion pictures are the best. We hope you, the audience, will approve.

Frank S. Pellegrini

General Chairman
Committee on Arrangements

# *Timetable*

## PRE-REGISTRATION

| | |
|---|---|
| **8:30 a.m.–4:45 p.m.** | (Medical Society's Offices) Friday, November 13 and Saturday, November 14, 1964 |
| | All other activities at the Hotel Statler-Hilton |

## MONDAY, NOVEMBER 16, 1964

| | |
|---|---|
| **8:45 a.m.** | Registration—Upper Lobby |
| **9:00 a.m.** | Scientific and Technical Exhibits open |
| | Medical Motion Pictures begin—Pan American Room |
| **9:25 a.m.** | Welcome: Edward W. Nicklas, M.D., President, The Medical Society of the District of Columbia |
| **9:30 a.m.** | Scientific Program—Presidential Ballroom |
| **12:15 p.m.** | George Washington University Medical Alumni Luncheon—Presidential Ballroom |
| **2:00 p.m.** | Scientific Program and Medical Motion Pictures resume |
| **4:45 p.m.** | Monday Scientific Program adjourns |
| **6:30 p.m.** | Symposium for Prospective Medical Students—Presidential Ballroom |

## TUESDAY, NOVEMBER 17, 1964

| | |
|---|---|
| **8:45 a.m.** | Registration—Upper Lobby |
| **9:00 a.m.** | Scientific and Technical Exhibits open |
| | Medical Motion Pictures begin—Pan American Room |
| **9:30 a.m.** | Scientific Program—Presidential Ballroom |
| **12:15 p.m.** | Georgetown University Medical Alumni Luncheon—Presidential Ballroom |
| **2:00 p.m.** | Scientific Program and Medical Motion Pictures resume |
| **4:30 p.m.** | Tuesday Scientific Program adjourns |
| **6:30 p.m.** | Reception for Doctors' Office Staff. Host: Russell, Marsh & Kennedy, Inc. |
| **7:30 p.m.** | Doctors' Office Staff Dinner—Presidential Ballroom |

## WEDNESDAY, NOVEMBER 18, 1964

| | |
|---|---|
| **8:45 a.m.** | Registration—Upper Lobby |
| **9:00 a.m.** | Scientific and Technical Exhibits open |
| | Medical Motion Pictures begin—Pan American Room |
| **9:30 a.m.** | Scientific Program—Presidential Ballroom |
| **12:15 p.m.** | Medical Society Luncheon—Presidential Ballroom |
| **2:00 p.m.** | Scientific Program and Medical Motion Pictures resume |
| **4:30 p.m.** | Wednesday Scientific Program closes |
| **6:30 p.m.** | Reception—Presidential Ballroom. Host: Peoples Drug Stores |
| **8:00 p.m.** | Annual Dinner Dance—Presidential Ballroom. Music courtesy Burton, Parsons & Co. |

### Telephone Calls for Physicians

If you are paged, go to the MEDICAL BUREAU booth, located in the "upper lobby" at the Information Desk.

The Bureau number is REpublic 7-6100

# *Social Affairs*

### GEORGE WASHINGTON UNIVERSITY MEDICAL ALUMNI LUNCHEON

Monday, November 16, 1964—12:15 p.m.
Presidential Ballroom
Guest Speaker—To be announced
Tickets available at Alumni Office or at Assembly Registration Desk

### DO YOU WANT TO BE A DOCTOR?

An Invitational Symposium
for
Prospective Medical Students
Monday, November 16, 1964—6:30 p.m.
Presidential Ballroom

### GEORGETOWN UNIVERSITY MEDICAL ALUMNI LUNCHEON

Tuesday, November 17, 1964—12:15 p.m.
Presidential Ballroom
Guest Speaker—To be announced
Tickets available at Alumni Office or at Assembly Registration Desk

### DOCTORS' OFFICE STAFF DINNER

Tuesday, November 17, 1964—6:30 p.m.
Presidential Ballroom

Tickets ($9.00) available through the Society Headquarters or at Assembly Registration Desk.

Cocktails for this occasion courtesy of RUSSELL, MARSH & KENNEDY, INC., to whom the Medical Assistants give a big vote of thanks.

### ANNUAL MEDICAL SOCIETY LUNCHEON

Wednesday, November 18, 1964—12:15 p.m.
Presidential Ballroom
Guest Speaker—To be announced
Tickets ($2.00) available at Society Headquarters or at Assembly Registration Desk

### MEDICAL SOCIETY ANNUAL FORMAL DINNER

Wednesday evening, November 18, 1964
Presidential Ballroom
Cocktails at 6:30 p.m.—Dinner at 8:00 p.m.
Dancing at 9:00 p.m.—Music by CARMEN
Tickets ($10 per person) available at Society Headquarters or at the Assembly Registration Desk.
The Cocktail Party—Courtesy of PEOPLES DRUG STORES
Music—Courtesy of BURTON, PARSONS & CO.
For this traditionally enjoyable affair, we are most indebted to both organizations.

### WOMEN'S MEDICAL SOCIETY HOSPITALITY SUITE

Massachusetts Room of the Statler-Hilton. Beverages and snacks will be served.

### WOMAN'S AUXILIARY HOSPITALITY ROOM

Coffee and doughnuts will be served in the Federal Room, courtesy of WILKINS COFFEE CO.

# *SCIENTIFIC PROGRAM*

(All Sessions in Presidential Ballroom)

## MONDAY MORNING, NOVEMBER 16

**Frank S. Pellegrini, M.D.,** *Presiding*

General Chairman, Thirty-second Annual Scientific Assembly

9:25 Welcome by **Edward W. Nicklas, M.D.,** President, The Medical Society of the District of Columbia

**Dr. Zimmerman**

**Dr. Popper**

**Dr. Leevy**

9:30 **SYMPOSIUM ON LIVER DISEASE**

Moderator:

**Howard E. Ticktin, M.D.**

Assistant Clinical Professor of Medicine, George Washington University School of Medicine

Drug-induced Hepatic Toxicity

**Hyman J. Zimmerman, M.D.**

Professor of Medicine, Chicago Medical School; Chairman, Department of Medicine, Mount Sinai Hospital, Chicago

Post-necrotic Cirrhosis (Chronic Active Hepatitis)

**Hans Popper, M.D.**

Professor of Pathology, Columbia University College of Physicians and Surgeons; Pathologist - in - Chief, Mount Sinai Hospital, New York City

Mechanism of Cirrhosis of the Alcoholic

**Carroll M. Leevy, M.D.**

Professor of Medicine, Seton Hall College of Medicine, Jersey City, N. J.

10:40 Recess to Visit Exhibits

11:10 Question-and-Answer Period

12:00 Recess for Lunch—Visit Exhibits

## MONDAY AFTERNOON, NOVEMBER 16

**Josephine E. Renshaw, M.D.,** *Presiding*

First Vice President, The Medical Society of the District of Columbia

2:00 **SURGICAL GRAND ROUNDS—CLOSED-CIRCUIT LIVE TELEVISION DIRECTLY FROM GEORGE WASHINGTON UNIVERSITY HOSPITAL**

Moderator:

**Calvin T. Klopp, M.D.**

Warwick Professor of Surgery (Cancer), George Washington University School of Medicine

Dr. Zuidema

Dr. Beahrs

Surgeons:

**George D. Zuidema, M.D.**
Professor of Surgery, Johns Hopkins University School of Medicine; Director, Department of Surgery, Johns Hopkins Hospital

3:00 Recess to Visit Exhibits

3:30 **Oliver H. Beahrs, M.D.**
Head of a Section of Surgery, Mayo Clinic; Associate Professor of Surgery, Mayo Foundation Graduate School, University of Minnesota

## TUESDAY MORNING, NOVEMBER 17

**Harold M. Hobart, M.D.**, *Presiding*

Second Vice President, The Medical Society of the District of Columbia

9:30 **PROBLEMS IN INFANT MORTALITY AND MORBIDITY**

Moderator:

**Myron E. Wegman, M.D.**
Dean, School of Public Health, University of Michigan

Prevention of Prematurity

**Robert H. Barter, M.D.**
Professor and Chairman, Department of Obstetrics and Gynecology, George Washington University School of Medicine

Current Status of Hyaline Membrane Disease

**Gordon B. Avery, M.D.**
Director of Newborn Nursery, Children's Hospital; Assistant Professor of Pediatrics, Georgetown University School of Medicine

Recognition of Illness in Infants

**Thomas E. Reichelderfer, M.D.**
Chief Medical Officer, Department of Pediatrics, District of Columbia General Hospital

Hemolytic Disease in the Newborn

**Clifford R. Booker, M.D.**
Assistant Professor of Pediatrics, Howard University College of Medicine

Dr. Wegman

Recognition of Surgical Emergencies in Infants

**Judson G. Randolph, M.D.**
Surgeon-in-Chief, Children's Hospital of the District of Columbia

10:30 Recess to Visit Exhibits

11:00 Public Health and Pediatric Aspects of Infant Mortality

**Myron E. Wegman, M.D.**

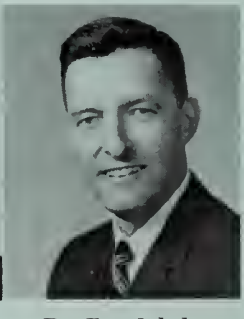
11:20 Question-and-Answer Period

12:00 Recess for Lunch—Visit Exhibits

Dr. Barter

Dr. Avery

Dr. Reichelderfer


Dr. Randolph

## TUESDAY AFTERNOON, NOVEMBER 17

**Victor R. Alfaro, M.D.,** *Presiding*

Chairman, Executive Board, The Medical Society of the District of Columbia

Dr. Harrington

Dr. Cutting

Dr. Lee

2:00 **CHANGING PATTERNS OF MEDICAL PRACTICE**

Moderator:

**Donald Stubbs, M.D.**

Member, Executive Committee, National Association of Blue Shield Plans

The Foundation for Medical Care Program

**Don Harrington, M.D.**

President, San Joaquin County Foundation for Medical Care, Stockton, California

Connotations of Group Practice—Prepayment Organization of Medical Care

**Cecil Cutting, M.D.**

Executive Director, The Permanente Medical Group, Oakland, California

3:00 Recess to Visit Exhibits

3:30 Group Practice and Prepaid Comprehensive Medical Care through Small and Intermediate Groups

**Russel V. Lee, M.D.**

Consultant, Palo Alto Medical Clinic, Palo Alto, California

Question-and-Answer Period

## WEDNESDAY MORNING, NOVEMBER 18

**Paul R. Wilner, M.D.,** *Presiding*

President-elect, The Medical Society of the District of Columbia

9:30 **PSYCHIATRY PROGRAM IN GENERAL MEDICAL PRACTICE**

Guilt: Friend or Foe?

**Sydney G. Salus, M.D.**

Assistant Clinical Professor of Child Psychiatry, Georgetown University School of Medicine

Hysteria: The Mimicry of Illness

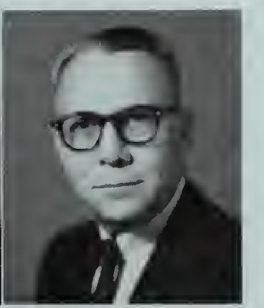
**Paul Chodoff, M.D.**

Associate Clinical Professor of

Dr. Salus

Dr. Chodoff

Dr. Yochelson


Dr. Schultz

## SCIENTIFIC PROGRAM APPROVED BY AAGP

The Assembly's Scientific Program has been approved by the American Academy of General Practice for its members for a maximum 15 hours' credit under CATEGORY I.

Psychiatry, George Washington University School of Medicine

Question-and-Answer Period

10:30 Recess to Visit Exhibits

11:00 Appraisal of the Role of Psychiatry in Modern Medicine

**Leon Yochelson, M.D.**

Chairman, Committee on Mental Health, and Chairman, Section on Psychiatry, The Medical Society of the District of Columbia

Plans for Establishing New Mental Health Facilities in the District of Columbia

**John D. Schultz, M.D.**

Deputy Director of Public Health for the District of Columbia, Division of Mental Health Activities

Question-and-Answer Period

12:00 Recess for Lunch—Visit Exhibits

## WEDNESDAY AFTERNOON, NOVEMBER 18

**Samuel M. Dodek, M.D.,** *Presiding*

Clinical Professor of Obstetrics and Gynecology, George Washington University School of Medicine

**Dr. Duncan**

**Dr. Burt**

**Dr. Jacobson**

**Dr. Young**

2:00 **DIABETES AND PREGNANCY**

Management of Diabetes in Pregnant Women

**Garfield G. Duncan, M.D.**

Professor of Medicine, University of Pennsylvania; Director of Medical Divisions, Pennsylvania Hospital and Benjamin Franklin Clinic

Diabetic Mechanisms in Pregnancy

**Richard L. Burt, M.D.**

Professor of Obstetrics and Gynecology, Bowman Gray School of Medicine of Wake Forest College

Question-and-Answer Period

3:30 **CYTOGENETICS**

Principles of Cytogenetic Analysis

**William J. Young, Ph.D.**

Associate Professor of Anatomy, Johns Hopkins University School of Medicine

Cytogenetics in Clinical Medicine

**Cecil B. Jacobson, M.D.**

Research Consultant, Laboratory of Human Cytogenetics, Department of Anatomy, George Washington University School of Medicine

# The Scientific Exhibit

All Exhibits Open from 9 A.M. to 5 P.M. Daily

## SOUTH AMERICAN ROOM

**Space 1**

**REPLACEMENT OF AORTIC AND MITRAL VALVES WITH CAGED DISCOID PROSTHESIS**

Charles A. Hufnagel, M.D., John F. Gillespie, M.D., and Peter W. Conrad, M.D., Georgetown University Hospital

**Space 2**

**COMPLICATIONS OF 1,000 THYROIDECTOMIES**

Ernest A. Gould, M.D., Erwin F. Hirsch, M.D., and Ira Brecher, M.D., Washington, D. C.

**Space 3**

**CRYPTOCOCCOSIS AND HISTOPLASMOSIS**

John P. Utz, M.D., and Chester Emmons, M.D., National Institute of Allergy and Infectious Diseases, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare

**Space 4**

**HUMAN CHROMOSOME ANALYSIS**

Comdr. E. W. Bird,[1] MC, USN, Bureau of Medicine and Surgery, U. S. Department of the Navy

**Space 5**

**MANAGEMENT OF LATERAL EPICONDYLITIS**

Lee J. Cordrey, M.D., and Jose Joaquin Diaz, M.D., Tampa, Florida

**Space 6**

**WHY GOUT SHOULD BE TREATED**

Kenneth M. Kron, M.D., Irvin F. Hermann, M.D., and Richard T. Smith, M.D., Benjamin Franklin Clinic, Philadelphia, Pennsylvania

**Space 7**

**CHRONIC INTERMITTENT HEMODIALYSIS**

Ervin A. Gombos, M.D., and Tae H. Lee, M.D., Veterans Administration Hospital, Washington, D. C.

**Space 8**

**COMPLICATIONS OF SICKLE-CELL DISEASE IN CHILDREN**

Roland B. Scott, M.D., Angella D. Ferguson, M.D., and Usha H. Saxena, M.D., Department of Pediatrics, Howard University College of Medicine

**Space 9**

**PROJECTION FOR INTRACRANIAL ANEURYSM**

John P. Gallagher, M.D., and Charles F. Geschickter, M.D., Georgetown University Hospital

**Space 10**

**RETROGRADE BRACHIAL ANGIOGRAPHY**

Nicholas P. D. Smyth, M.D., and Gunter J. Augustin, M.D., Washington Hospital Center

**Space 11**

**CHONDROCALCINOSIS**

Homer L. Twigg, M.D., and Nathan J. Zvaifler, M.D., Georgetown University Hospital

**Space 12**

**LYMPHANGIOGRAPHY AS A THERAPEUTIC ADJUNCT**

David M. Seitzman, M.D., and Major Fouad A. Halaby, MC, USA, Adelphi, Maryland

**Space 13**

**DYNAMICS OF OSTEOMALACIA**

Harold M. Frost, M.D., and Boy Frame, M.D., Department of Orthopedic Surgery, Henry Ford Hospital, Detroit, Michigan

**Space 14**

**OCULAR SIGNS IN SYSTEMIC DISEASES**

Peter Y. Evans, M.D., James F. Delaney and Jay Wruck, Georgetown University Hospital

**Space 15**

**ALCOHOL AND ACCIDENTS**

Marion Mann, M.D., Richard L. Whelton, M.D., and Linwood L. Rayford, Jr., M.D., Howard University College of Medicine and Office of the Coroner, Washington, D. C.

ACKNOWLEDGMENT: Your Committee on Arrangements wishes to acknowledge a contribution from Eli Lilly and Company of Indianapolis to defray the expenses of a guest speaker.

## FOYER NUMBER 3

**Space 16**

**UNUSUAL CHOLECYSTOPATHIES**
Allan Hall, M.D., and William Roll, M.D. Fairfax Hospital, Falls Church, Va.

**Space 17**

**COMPARISON OF MONTISORRI WITH ORTHODOX METHODS OF TRAINING OF BRAIN-DAMAGED CHILDREN**
William P. Argy, Sr., M.D., Washington, D. C.

**Space 18**

**ORAL HEMORRHAGE**
Clifton O. Dummett, D.D.S., Veterans Administration Hospital, Tuskegee, Alabama, and Emanuel Cheraskin, M.D., D.M.D., School of Dentistry, Medical College of Alabama

**Space 19**

**LOWER EXTREMITY PROSTHETICS FOR THE JUVENILE AMPUTEE**
Charles H. Epps, Jr., M.D., Helen H. Vaughn, R.P.T., Rena M. Graham, O.T.R., Maxine Wallace, M.S.W., and Gertrude L. Bramley, M.D., Handicapped and Crippled Children's Service, District of Columbia General Hospital

**Space 20**

**THE TARGET**
C. Wendell Freeman, M.D., Department of Public Health, District of Columbia

## UPPER CAPITAL TERRACE

**Space 66**

**TEACHING MENTAL RETARDATION**
Stanley I. Wolf, M.D., Leon Cytryn, M.D., Stanley Silverberg, M.D., and E. Paul Benoit, Jewish Foundation for Retarded Children, Washington, D.C.

**Space 67**

**THE MAJOR UNCONTROLLED CANCER—CARCINOMA OF THE BREAST**
American Cancer Society, District of Columbia Division, Inc.

**Space 68**

**THE WORLD MEDICAL ASSOCIATION**
10 Columbus Circle, New York, N.Y.

**Space 69**

**MEDICAL APPROACHES TO MENTAL RETARDATION**
Paul H. Pearson, M.D., Mental Retardation Branch, Division of Chronic Diseases, Public Health Service, U.S. Department of Health, Education, and Welfare

**Space 70**

**MEDICO—A SERVICE OF CARE**
Washington, D.C.

**Space 71**

**SURGICAL ROUNDS IN THE SOVIET UNION**
John M. Keshishian, M.D., Washington, D.C.

# Medical Motion Pictures

## PAN AMERICAN ROOM

### NOVEMBER 16, 17 AND 18

| *Time* | *Title* | *Source* |
|---|---|---|
| **9:00 a.m.** | **MAGANGA (Jungle Doctor)** | Warner-Chilcott Laboratories, Morris Plains, New Jersey |
| **9:46 a.m.** | **MAMMAPLASTY** | J. O. Strombeck, M.D., O. Von Dardel, M.D., and E. Eriksson, M.D., Stockholm, Sweden |
| **10:11 a.m.** | **OFFICE DIAGNOSIS OF UTERINE MALIGNANCY, COLPOSCOPY, CYTOLOGY AND BIOPSY** | Joseph W. Scott, M.D., Miami, Florida, and Carolos Alberto Vence, M.D., Barranquilla, Colombia |
| **10:30 a.m.** | **RECESS TO VISIT EXHIBITS** | |
| **10:45 a.m.** | **BREAST SELF-EXAMINATION** | American Cancer Society, New York, N. Y. |
| **11:00 a.m.** | **PROCTOSIGMOIDOSCOPY: A PART OF THE PHYSICAL EXAMINATION** | J. Englebert Dunphy, M.D., and William Fletcher, M.D., Portland, Oregon |
| **11:22 a.m.** | **DIAGNOSIS AND TREATMENT OF RENAL HYPERTENSION** | Chester C. Winter, M.D., Columbus, Ohio |
| **11:43 a.m.** | **INTERNAL ARCHITECTURE OF THE FEMUR—PART II: THE SHAFT** | William J. Tobin, M.D., Washington, D.C. |
| | **RECESS FOR LUNCH** | |
| **2:00 p.m.** | **VAGINAL HYSTERECTOMY: A SIMPLIFIED TECHINIQUE** | Robert H. Barter, M.D., Washington, D C. |
| **2:28 p.m.** | **CRANIAL NERVES—PHYSICAL DIAGNOSIS** | Bernard J. Alpers, M.D., Philadelphia, Pennsylvania |
| **3:00 p.m.** | **INHALATION THERAPY — AEROSOLS AND INTERMITTENT POSITIVE PRESSURE BREATHING** | Edwin R. Levine, M.D., Chicago, Illinois |
| **3:45 p.m.** | **INTRAPERITONEAL REPAIR OF INCISIONAL HERNIAS WITH MARLEX MESH** | Francis C. Usher, M.D., Houston, Texas |
| **4:00 p.m.** | **PROTOCOL FOR MULTIPLE BIRTH DELIVERIES** | William M. Alpern, M.D., and Allan G. Charles, M.D., Chicago, Illinois |
| **4:20 p.m.** | **OBSTETRICS AND GYNECOLOGY IN A WEST AFRICAN COMMUNITY** | Lawrence D. Longo, M.D., Los Angeles, California |

# *The Technical Exhibit*

## CONGRESSIONAL AND FEDERAL ROOMS AND FOYER 2

All Exhibits Open from 9 A.M. to 5 P.M. Daily

| | *Booth No.* |
|---|---|
| **ABBOTT LABORATORIES**<br>Fourteenth and Sheridan Road, North Chicago, Illinois | 6 |
| **AMERICANA CORPORATION**<br>291 South La Cienega Boulevard, Beverly Hills, California | 53 |
| **ARCUM PHARMACEUTICAL CORPORATION**<br>P.O. Box 267, Vienna, Virginia | 34 |
| **ARNAR-STONE LABORATORIES, INC.**<br>Charles C. Haskell Division, 225 East Prospect Avenue, Mt. Prospect, Illinois | 19 |
| **AYERST LABORATORIES**<br>Division of American Home Products Corp., 2009 North Fourteenth Street, Arlington, Virginia | 49 and 62 |
| **BETH-MONT SURGICAL SUPPLY COMPANY**<br>7815 Woodmont Avenue, Bethesda, Maryland | 64 |
| **BEUCHLER'S INC.**<br>915 Nineteenth Street, N.W., Washington 6, D.C. | 22 |
| **THE BORDEN COMPANY**<br>350 Madison Avenue, New York 17, N. Y. | 7 |
| **BOYCE & LEWIS, INC.**<br>439 Seventh Street, N.W., Washington 4, D. C. | 57 |
| **BRISTOL LABORATORIES**<br>P.O. Box 657, Syracuse, New York | 50 |
| **BURROUGHS WELLCOME & COMPANY (U. S. A.), INC.**<br>1 Scarsdale Road, Tuckahoe, New York | 63 |
| **BURTON, PARSONS & COMPANY, INC.**<br>7351 Eighty-sixth Avenue, Washington 27, D.C. | 24 |
| **CARNATION COMPANY**<br>5045 Wilshire Boulevard, Los Angeles 36, California | 2 |
| **CIBA PHARMACEUTICAL COMPANY**<br>556 Morris Avenue, Summit, New Jersey | 11 |
| **THE COCA-COLA COMPANY**<br>P.O. Drawer 1734, Atlanta 1, Georgia | 38 |
| **CORECO RESEARCH CORPORATION**<br>159 West Twenty-fifth Street, New York 1, N. Y. | 31 |
| **DAVIES, ROSE & COMPANY, LTD.**<br>22 Thayer Street, Boston 18, Mass. | 26 |
| **DOME CHEMICALS, INC.**<br>125 West End Avenue, New York 23, N. Y. | 16 |
| **ENCYCLOPAEDIA BRITANNICA**<br>425 N. Michigan Avenue, Chicago 11, Illinois | 27 |
| **GEIGY PHARMACEUTICALS**<br>P.O. Box 430, Yonkers, New York | 29 |
| **NELSON KLOMAN SURGICAL SUPPLY COMPANY**<br>1018 Eighteenth Street, N.W., Washington 6, D. C. | 45 |
| **KNOLL PHARMACEUTICAL COMPANY**<br>377 Crane Street, Orange, New Jersey | 8 |
| **LEDERLE LABORATORIES**<br>Pearl River, New York | 42 |
| **LOMA LINDA FOODS**<br>Riverside 5, California | 40 |
| **MAXWELL & TENNYSON, INC.**<br>915 Nineteenth Street, N.W., Washington 6, D. C. | 39 |
| **MEAD JOHNSON LABORATORIES**<br>2404 Pennsylvania Street, Evansville 21, Indiana | 60 |
| **MEDCO PRODUCTS COMPANY**<br>5304 St. Albans Way, Baltimore 12, Maryland | 4 |
| **MERCK SHARP & DOHME**<br>West Point, Pennsylvania | 37 |
| **THE WILLIAM S. MERRELL COMPANY**<br>110 Amity Road, Cincinnati 15, Ohio | 33 |
| **MUTUAL BENEFIT LIFE INSURANCE COMPANY**<br>100 Indiana Avenue, N.W., Washington 1, D.C. | 3 |
| **ORGANON, INC.**<br>West Orange, New Jersey | 51 |
| **ORTHO PHARMACEUTICAL CORPORATION**<br>Raritan, New Jersey | 28 |
| **PEOPLES DRUG STORES, INC.**<br>60 Florida Avenue, N.E., Washington 2, D.C. | 35 |
| **PFIZER LABORATORIES**<br>235 East Forty-second Street, New York, N. Y. | 17 |
| **WM. P. POYTHRESS & CO., INC.**<br>P.O. Box 2158, Richmond, Virginia | 52 |
| **PROFESSIONAL BUSINESS MANAGEMENT, INC.**<br>1009 Twentieth Street, N.W., Washington 6, D. C. | 1 |

| | *Booth No.* |
|---|---|
| **RAMAR HEALTH PRODUCTS**<br>22 Fox Lane, Broomall, Pennsylvania | 32 |
| **RIKER LABORATORIES, INC.**<br>19901 Nordhoff Street, Northridge 26, California | 25 |
| **RITTER COMPANY, INC.**<br>P.O. Box 848, Rochester, New York | 41 |
| **A. H. ROBINS COMPANY, INC.**<br>1407 Cummings Drive, Richmond, Virginia | 48 |
| **ROCHE LABORATORIES**<br>Nutley 10, New Jersey | 61 |
| **ST. PAUL INSURANCE COMPANIES**<br>385 Washington Street, St. Paul, Minnesota | 5 |
| **SANDOZ PHARMACEUTICALS**<br>Route 10, Hanover, New Jersey | 21 |
| **W. B. SAUNDERS COMPANY**<br>Philadelphia, Pennsylvania | 59 |
| **SCHERING CORPORATION**<br>1011 Morris Avenue, Union, New Jersey | 47 |
| **JULIUS SCHMID, INC.**<br>423 West Fifty-fifth Street, New York, N. Y. | 13 |
| **G. D. SEARLE & COMPANY**<br>P.O. Box 5110, Chicago 80, Illinois | 18 |
| **SHERMAN LABORATORIES**<br>Detroit 11, Michigan | 54 |
| **SMITH KLINE & FRENCH LABORATORIES**<br>1500 Spring Garden Street, Philadelphia 1, Pennsylvania | 12 |
| **SMITH, MILLER AND PATCH, INC.**<br>902 Broadway, New York, N.Y. | 14 |
| **E. R. SQUIBB & SONS**<br>745 Fifth Avenue, New York 22, N. Y. | 43 |
| **STIEFEL LABORATORIES, INC.**<br>Oak Hill, New York | 58 |
| **THE STUART COMPANY**<br>Division of Atlas Chemical Industries, Inc., 3360 East Foothill Boulevard, Pasadena 9, California | 10 |
| **SYNTEX LABORATORIES, INC.**<br>701 Welch Road, Palo Alto, California | 44 |
| **THE UPJOHN COMPANY**<br>7000 Portage Road, Kalamazoo, Michigan | 56 |
| **U. S. VITAMIN & PHARMACEUTICAL CORP.**<br>800 Second Avenue, New York, N. Y. | 9 |
| **WALKER LABORATORIES**<br>Bradford Road, Mount Vernon, New York | 23 |
| **WALLACE LABORATORIES**<br>Half Acre Road, Cranbury, New Jersey | 36 |
| **WARNER-CHILCOTT LABORATORIES**<br>Division of Warner-Lambert Pharmaceutical Company, 201 Tabor Road, Morris Plains, New Jersey | 46 |
| **WHITE LABORATORIES, INC.**<br>Galloping Hill Road, Kenilworth, New Jersey | 20 |
| **THE WILLIAMS & WILKINS COMPANY**<br>428 East Preston Street, Baltimore, Maryland | 55 |
| **WTS PHARMACEUTICALS**<br>P.O. Box 1212, Rochester, New York | 15 |

# *Committee on Arrangements*

Chairman: Frank S. Pellegrini, M.D.

## COMMITTEES

### PROGRAM

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James A. Curtin
James E. Fitzgerald
Seymour Alpert
Calvin T. Klopp
Roland B. Scott
Russell M. Tilley
Morris Kleinerman

### SCIENTIFIC EXHIBIT

Raymond A. Osbourn, *Chairman*

Everett J. Gordon
John M. Keshishian
Morris E. Krucoff
Eugene G. Lipow

### MEDICAL MOTION PICTURES

Joel B. Hoberman, *Chairman*

Thomas E. Curtin
Fofo Mezitis

### SOCIAL COMMITTEE

John S. Hashim, *Chairman*

### PUBLICITY and ATTENDANCE

Warren D. Brill, *Chairman*
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Orville W. Donnelly
Peter N. Horvath
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Gordon S. Letterman
Henry A. Monat
Antoinette F. Popovici
Mitchell W. Spellman
Harold Stevens
Myer H. Stolar
Warren J. Strudwick

### WOMEN'S MEDICAL SOCIETY OF D.C.

Gloria Cochran, *President*
Aurora F. Alberti, *President-elect*
Agnes G. Schweitzer, *Secretary*
Petrena Abbe Shea, *Treasurer*

### WOMAN'S AUXILIARY

Mrs. Hugh O. House, *President*
Mrs. O. Hugh Fulcher, *President-elect*
Mrs. Robert Havell, *Recording Secretary*
Mrs. Albert Marland, *Corresponding Secretary*
Mrs. Joseph M. Daly, *Treasurer*

# *Assembly Notes*

ACKNOWLEDGMENT: Your Committee on Arrangements wishes to express its appreciation to Mutual of Omaha Insurance Company, Joseph E. Jones, Administrator, for contributing to the printing costs of this program.

# *Assembly Notes*

**Report of Secretary-Treasurer**

(*Continued from page 512*)

will be slow, but the service has and will continue to improve.

The growing importance of the MEDICAL BUREAU to the public as well as to its member physicians is shown by the following:

| | 1960 | 1962 | 1963 | 1964 (est.) |
|---|---|---|---|---|
| Total Recorded Calls | 676,049 | 767,812 | 822,300 | 911,200 |
| Total Subscribers | 773 | 773 | 775 | 784 |
| Total Number of Operators | 27 | 29 | 30 | 34 |

In 4 years the BUREAU has 11 more physician members and will record over 235,000 more calls. If the unrecorded calls were included the total would be well over 1,250,000. It is self-evident that greater use is being made of the BUREAU by both physicians and patients. This is good; it is a real community service, but the greater its use the more the problems. The Medical Bureau Committee has striven diligently to unravel these problems. All are in hopes a new building with new equipment will prove to be a real help in this regard. The new "Bell Boy" electronic system now used by some physicians has proved a real asset. The Committee succeeded in obtaining a priority for physicians for the "Bell Boy," and many more might check its advantages.

Dollarwise, the MEDICAL BUREAU carries itself, with a small balance now being set aside each year as a reserve for equipment and improvements. The Telephone Company has assured us of new and modern equipment in the new building, something which every operator is anticipating.

As Secretary-Treasurer and Executive Director of this Medical Society, it is my duty to express my views as I see them after due consideration and study. This I have done where indicated or called upon during the year. Policy lies within the province of Committees, the Executive Board, and the Society membership. Every member of the Medical Society has equal access to the Executive Board, the Committees, and your Executive Office. Your staff cannot always satisfy all members, but we will do our best, and I am sure I speak for every employee of the Society.

Respectfully submitted,
GEORGE W. COOLEY
*Secretary-Treasurer*

In long-term treatment of your patients with coronary insufficiency...
MORE HELP FOR THE STRICKEN HEART

- **PETN (pentaerythritol tetranitrate) to increase oxygen supply**
- **plus meprobamate to decrease anxiety and tension**

Unlike phenobarbital, meprobamate is *not* cumulative and does *not* cause depression.

**Side effects:** Pentaerythritol tetranitrate may infrequently cause nausea and mild headache, usually transient. Slight drowsiness may occur with meprobamate and, rarely, allergic reactions. **Precautions:** Meprobamate may increase effects of excessive alcohol. Consider possibility of dependence, particularly in patients with history of drug or alcohol addiction. **Contraindications:** Like all nitrate-containing drugs, 'Miltrate' should be given with caution in glaucoma. *Complete product information available in the product package, and to physicians upon request.* **Dosage:** 1 to 2 tablets, *before meals* and at bedtime. Individualization required. **Supplied:** Bottles of 50 tablets.

CML-1055

**MILTRATE®**
**meprobamate 200 mg. + pentaerythritol tetranitrate 10 mg.**

WALLACE LABORATORIES / *Cranbury, N. J.*

**Doctor—*Remember***

RADIATION THERAPY remains an effective method in the curative and palliative management of cancer.

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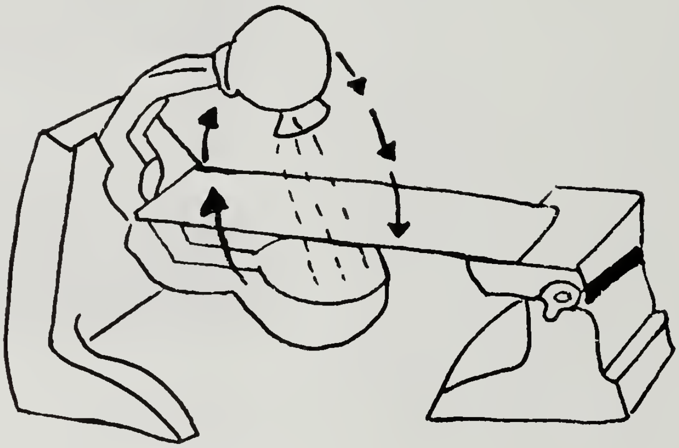

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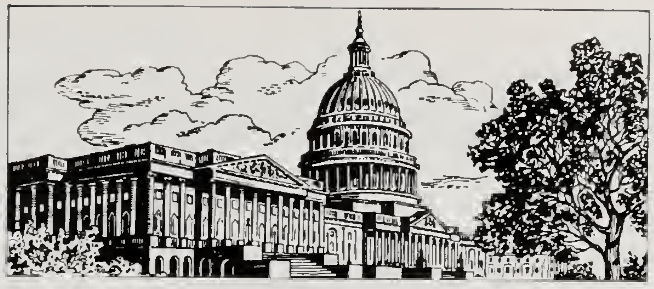

# NEWS & PERSONALS

## Summary of Executive Board Actions

**The Executive Board of the Medical Society of the District of Columbia** met in regular session on July 27, 1964, in the Society's building. Dr. Victor R. Alfaro, Chairman, presided. Members present were Drs. C. Willard Camalier, Jr., Karl C. Corley, J. Spencer Dryden, Harold M. Hobart, Raymond T. Holden, Edward W. Nicklas, Josephine E. Renshaw, Duane C. Richtmeyer, Paul R. Wilner, and Mr. George Cooley, Secretary. Present by invitation were Dr. Maurice Protas, Chairman of the Committee on Hospital Relations, and Dr. W. LeRoy Dunn, Chairman of the Committee on Constitution and By-laws. The meeting was called to order at 7:30 p.m.

**Committee Meetings:** The Secretary reported the following committee meetings held since the Board's last meeting:

| | |
|---|---|
| July 1 | Committee on Venereal Disease |
| 8 | Public Health Committee |
| 9 | Committee on Armed Forces and Veterans Affairs |
| 9 | Traffic Committee |
| 10 | Committee on Ruffin and Other Bequest Funds |
| 10 | Review Board for Prepaid Medical Care Benefits |
| 21 | Grievance Committee |

**Committee on Hospital Relations:** Dr. Protas appeared before the Board to discuss a request for assistance from a member who had not been reappointed to the staff of a hospital. Dr. Protas pointed out that representatives of the hospital had refused to discuss the case with him, although he had been requested by the Committee to look into the matter. Dr. Protas inquired as to the function of this Committee, pointing out that without an opportunity to discuss matters with hospital representatives when complaints or problems arose, the Committee would be of no value. After some discussion the Board authorized a letter to be prepared to the proper official of the hospital, calling attention to the problem and stating that while the Executive Board recognizes the full authority of the Trustees of each hospital to determine staff membership, it is of the opinion that the hospital officials should at least be willing to discuss such matters with official representatives of the Medical Society.

**Committee on Constitution and By-laws:** Dr. Dunn, Chairman of this Committee, reviewed in detail the changes suggested by the Committee. The Board made a number of changes and finally approved a draft to be presented to the membership.

**Finance Committee:** The Board accepted the Treasurer's Report on Income and Expenses for the first 6 months of 1964.

**Legacy from Copeland Estate:** The Secretary reported that the Dr. Edgar P. Copeland Estate had allocated $1,000 to the Medical Society without specification as to its use. The Board voted to write a letter to the brother of Dr. Copeland expressing appreciation for this generous bequest. It was agreed to defer action as to the disposition of the money until a later date.

**Thomas M. Leonard Fund:** The Secretary reported that Drs. William T. Lady, Jed W. Pearson, and Seymour Alpert had asked the Society to be the depository for funds to assure a college education for the son of the late Dr. Leonard; or, in the event such funds were not needed by him, to assist some other needy boy or boys to obtain a similar education. This fund was begun while Dr. Leonard was still alive so he knew, because of the generosity of his colleagues, that the future education of his son was assured. At present this money is being deposited in the McChesney Fund.

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The Secretary said it is his hope that future contributions to the new Health Foundation of D. C., established to use any funds left over after the expenses of the Polio Immunization Program have been paid, would be tax-deductible. If so, it may be that the Board will wish to transfer the McChesney and Leonard Funds to the Health Foundation so that these and future contributions also may be tax-deductible.

**Board of Credentials:** The Executive Board approved the following recommendations of the Board of Credentials:

*Active Member*

Stanley M. Kirson, 1800 Eye Street, N. W.

*Transfer*

*Active to Special:* Edward A. Krause

*Resignations*

*Active:* Jules Gilbert and William J. Washington, Jr.

**Committee on Ruffin and Other Bequest Funds:** In response to an inquiry from the Executive Board, members of this Committee agreed that bequest funds should not be used to pay dues of members financially in need. The Board accepted this opinion.

**Licensing of Psychologists:** The Board approved a letter to be sent to Dr. Murray Grant, Director of the District of Columbia Health Department, which had been prepared by Dr. Leon Yochelson, Chairman of the Committee on Mental Health, with the assistance of Mr. Warren Magee, Legal Counsel. The letter was to the effect that the "Executive Board of the Medical Society has concurred in and approved the action taken by the Committee on Mental Health and is opposed to legislation having for its objective the licensing of psychologists in the District of Columbia." The letter refers to a joint resolution adopted in 1954 by the American Medical Association and the American Psychiatric Association which stated that "psychologists and other related professional groups, while autonomous and independent in matters where medical questions are not involved, where diagnosis and treatment of mental illness are involved, the participation of psychologists 'must be coördinated under medical responsibility.' " The members of the Board concurred with the Committee on Mental Health in opposing the licensing of psychologists in the District of Columbia on the basic ground that such licensing is not in the best interests of mentally disturbed patients.

**Scientific Assembly Luncheon:** The Board voted to schedule the Annual Medical Society Luncheon on Wednesday, November 18, with a nominal charge in order to discourage the large number of physicians who in the past have secured tickets in advance but have not used them.

**Annual Business Meeting:** The Annual Business Meeting is scheduled to be held on Sunday afternoon, November 15, 1964.

**Representatives to National Meetings:** The Board was requested to approve the designation of Dr. Paul R. Wilner and/or Dr. Myer Stolar as representatives to the AMA Institute on Public Relations, August 20 and 21. Dr. Leon Yochelson, or a representative selected by him, was requested to attend the Second Congress on Mental Illness and Health, also sponsored by the AMA, to be held in Chicago, November 5–7.

### August 14 Meeting

Dr. Alfaro, Chairman of the Executive Board, presided at the meeting, August 14, which was held in the Medical Society's building. Present were Drs. Corley, Hobart, Holden, Nicklas, Richtmeyer, Wilner, and Mr. Cooley, Secretary. Mr. Warren Magee, Legal Counsel, was present by invitation. The meeting was called to order by the Chairman at 7:30 p.m.

**Public Health Committee:** Upon the recommendations of this Committee the following actions were taken:

*Maternal and Infant Mortality:* After considerable discussion the Board voted to adopt the following policy statement, to be submitted to Dr. Grant, D. C. Director of Public Health:

"The Executive Board fully concurs with the need to reduce District Maternal and Infant Mortality rates. It believes that the most important factor is one of motivation, and that proper education is more important in accomplishing such reductions than the financial aspects.

"The Executive Board does, however, wish to be as coöperative as possible in any effort to achieve your objective. Therefore, it was voted to approve your recommendation that the Commissioners rescind Order No. 57-1525 and substitute a general Prenatal Care Program as outlined in your memorandum. The Executive Board wishes to point out again that the primary problem in motivating women to obtain prenatal care is not one of financial responsibility, but one of education or lack thereof. The Board urges you to utilize all of the services available to you, including public health nurses and educators, and to coöperate with public school officials to get pregnant women motivated to the use of present facilities, which are believed to be adequate at this time. Without such an educational program, the proposals you have made will be, in the Board's opinion, a waste of time and money and probably will not succeed in the objective."

*Premarital Serologic Testing for Syphilis:* After discussing the recommendations of the Public Health Committee and the Committee on Venereal Disease concerning this proposed legislation, the Board voted to send the following statement to Dr. Grant, D. C. Director of Public Health:

"The data you presented in support of this recommendation were reviewed carefully. The Board recalls that in August 1962 the Society's Committee on Public Health considered a similar proposal from you and requested that Dr. Paul Cornely study the results in states having such laws. In December of 1962 Dr. Cornely reported that he had reviewed the literature and that it seemed that such laws in other states had proved to be ineffective; and, therefore, he did not feel that with the information presently at hand a law here in the District requiring premarital tests would be useful. As a result, no action was taken.

"The Board was further reminded that the delay or prevention of marriage by such means

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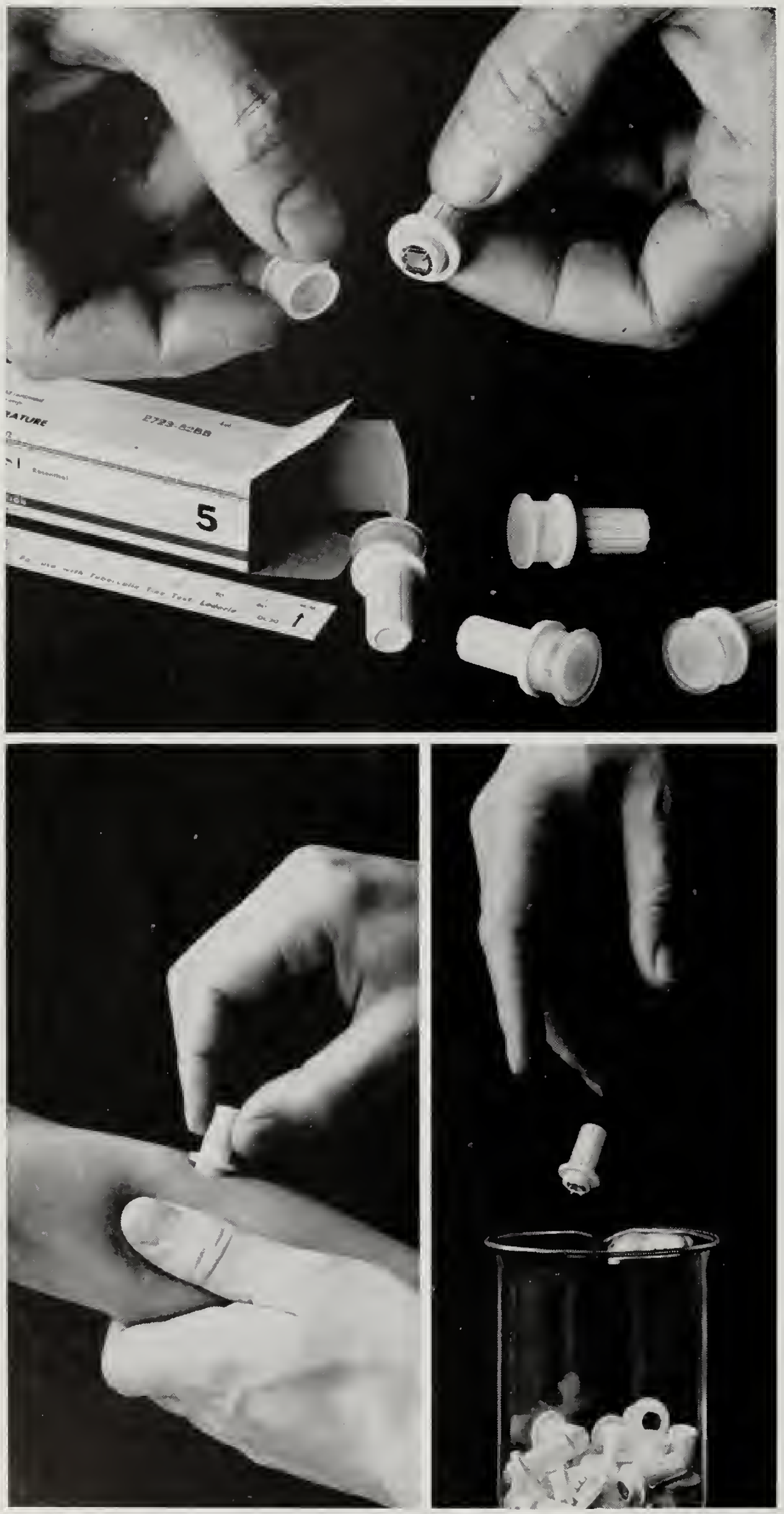

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"In the absence of any information later than that presented by Dr. Cornely and in view of the above it was voted that this be referred back to the Committee on Venereal Disease for reconsideration and for data on the experience in other states now having such a law."

*Serologic Testing for Syphilis of Pregnant Women:* Again, the recommendations of the Public Health Committee and the Committee on Venereal Disease were considered. The Board voted to approve the recommendation for such testing providing (1) that the serologic test be made at the first visit during which pregnancy was established as a certainty; and (2) that qualified private laboratories be permitted to conduct these serologic tests.

A letter from Dr. Herbert P. Ramsey relative to the recommendations of Dr. Grant was considered concurrently with consideration of each recommendation. The Secretary was instructed to send copies of the Board's actions to Dr. Ramsey.

*New Screening Program Submitted by Dr. Grant:* President Nicklas read a letter from Dr. Grant, dated August 10, in which he announced the inauguration of a new screening program at the Southwest Health Center in addition to a Mobile Health Unit. Previous minutes of the Committee on Public Health were reviewed and it was agreed that the Mobile Health Screening Program had been approved as a pilot project to extend for 5 years for the purpose of ascertaining the value of screening as it relates to chronic illness. It was agreed that sufficient time had not elapsed to support this nor had supporting data been provided. The President was requested to point this out in a letter to Dr. Grant.

**Committee on Sports:** A communication from Dr. George Resta, Chairman of the Committee on Sports, stated that a subcommittee had met with representatives of the firm, Stretch and Flex. This committee approved the exercises recommended by this firm for members of Congress and senior citizens with the provision "that they should not be undertaken until it is determined by physical examination that there are no medical contraindications." The Board was also asked to approve a special program of physical exercises for U. S. Congressmen which had been developed by the Recreation Department of the City of Hollywood, Florida. The Board agreed in principle that all Congressmen, as well as senior citizens, should maintain some type of physical exercise program within the physical limits of the individual, as determined by his physician. However, the Board does not believe that it nor the Society should endorse any particular system of exercises such as that represented by Stretch and Flex.

The Board members agreed informally that specific programs of this type should come within the jurisdiction of the President's Committee on Physical Fitness.

**New Headquarters Building:** Mr. Magee was present at the request of the President to report on some proposals involving the Medical Society's new building and a proposed 10-story building to be built in connection with it, using air rights. No action was taken regarding the matters discussed.

**Medical Council of the Washington Metropolitan Area:** President Nicklas stated that new By-laws had been considered by the Medical Council and were being submitted to each Medical Society for approval. The Board approved the By-laws with the following amendment to Section 2, Article IV: "No Medical Society or Medical Society representative shall be eligible to hold the office of President of the Council for more than 2 consecutive years."

**Ownership of Pharmacies and Drug Companies:** The Secretary reported that he had received a telephone call from the Senate Anti-Trust Committee and a newspaper reporter regarding physicians' ownership of pharmacies, stock in drug companies, and direct lines to pharmacies. The Secretary had responded that to his knowledge these conditions did not exist in the District and that the use of direct lines would depend upon the meaning of the term. A large medical complex, for example, Doctors Hospital, has a central switchboard through which doctors can receive calls and make calls to pharmacies located in the complex. Board members stated that they knew of no doctors owning pharmacies or the major portion of stock in drug companies. The Secretary was asked to investigate further and report back.

**Board of Credentials:** The following applicant was approved for membership:

*Associate Member*

Thomas McDowell Anderson, 1900 Columbia Pike, Arlington, Va.

**Nominating Committee:** The Nominating Committee appointees submitted by Dr. Nicklas

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were approved with the suggestion that a woman physician be added to the list.

**Medical Care Committee:** The Secretary reported that this Committee had voted to go on record as accepting the new Professional Services Index for presentation to the specialty groups on Sunday, September 20, 1964.

**Doctors' Symphonetta:** With the approval of Dr. Frank M. McChesney, the President advised that $175 of the McChesney Fund could be used to purchase tympani drums for the Doctors' Orchestra. The Board approved this use of the funds and also agreed that an item be printed in the *Newsletter* urging physicians to become Sustaining Contributors to the Orchestra by $10 donations.

**Constitution and By-laws:** The Board voted that changes in the Constitution and By-laws should be considered at the regular meeting of the Society in November and not at a special meeting.

There being no further business, the meeting was adjourned.

# Meetings

**The National Capital Occupational Medical Association,** a new affiliate unit of the Industrial Medical Association, will hold a dinner meeting, October 27, at the Commissioned Officers' Club at the U. S. Naval Hospital in Bethesda, Md., to which prospective physician members are invited. The guest speaker will be Dr. Robert Ayerle, Medical Director of the Pennsylvania Bell Telephone Company. He will speak on "Sigmoidoscopy in Periodic Health Examinations."

Reservations are required and can be made with Dr. Thomas L. Hartman, telephone Metropolitan 8-5520. There will be a cocktail hour beginning at 6:30 p.m. Steak dinner, for which there is a charge of $4.50, is scheduled for 7:30 p.m.

**The Washington Section, Instrument Society of America** extends a cordial invitation to physicians to attend its meeting, November 2, at 8 p.m. in Room 3-A, Building 31 of the National Institutes of Health. The speaker will be Dr. Ernest Cotlove, who is Chief of the Clinical Chemistry Service, Department of Pathology, at the Clinical Center of NIH. He will speak on a timely subject, "Automation in the Clinical Laboratory."

**The Second John Hugh Lyons Lecture** will be held this year in the auditorium of Children's Hospital on Wednesday, November 4, at 8 p.m. The speaker will be Dr. C. Everett Koop, Surgeon-in-Chief, Philadelphia Children's Hospital, and Professor of Surgery at the University of Pennsylvania School of Medicine. His lecture will concern pediatric surgery.

The John Hugh Lyons Lecture, an annual event, is scheduled for alternate years at the Washington Hospital Center and Children's Hospital, the 2 institutions to which Dr. Lyons devoted so much of his time and talents. The first lecture was held at the Washington Hospital Center; this year Children's Hospital will be host.

**The 15th National Conference on Disaster Medical Care,** sponsored by the Committee on Disaster Medical Care of the Council on National Security, American Medical Association, will convene at the La Salle Hotel in Chicago, November 7–8. A registration fee of $10 will be payable at the time of registration.

Conference highlights will include: Care of Multiple Injury Patient: Resuscitation, the Severely Fractured Extremity, Abdominal and Thoracic Injuries, Vascular Injury in the Extremity, Burns, X-ray Examination of the Injured Person, Transportation of the Injured; Establishing a Community Emergency Health Service; Planning for Disaster—Chicago Method; Workshops—For Doctors—For Hospitals—For Community Planners.

The American Medical Association's Council on Medical Service is sponsoring its first **National Conference on Areawide Health Facilities Planning** to be held at the Americana Hotel in Bal Harbour, Fla., November 28 and 29. This meeting will immediately precede the 18th Clinical Convention of the AMA. Additional information may be secured from the Department of Hos-

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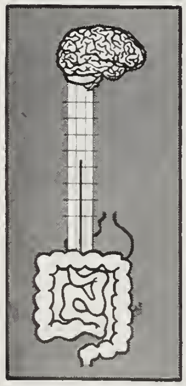

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## General News

**As a precaution against the possibility of influenza** due to a new variety of the causative virus, the Army Medical Service has altered the composition of its flu vaccine to include 2 recently isolated strains of influenza virus. The new strains were isolated during recent outbreaks in Maryland and Japan and will be substituted for 2 strains which have been in the vaccine for years. Administration of the new vaccine will commence for all service personnel and their dependents in the near future.

The Armed Forces Epidemiological Board's Commission on Influenza recommended that the new influenza virus vaccine be available for the 1964–65 influenza season.

**The Division of Foreign Quarantine,** Public Health Service, advises that many travelers wanting to bring in psittacine birds, dogs, cats, or monkeys into the United States from abroad run into difficulty at ports of entry because they have neglected to make sure that their pets meet Federal public health foreign quarantine regulations for the importation or reëntry of pets into the United States. Information regarding such regulations is available from the Surgeon General, Public Health Service, Washington 25, D. C.

The sixth and seventh guides in the series **"Guides to the Evaluation of Permanent Impairment,"** developed by the Committee on Rating of Mental and Physical Impairment of the American Medical Association, have been published recently in the *Journal of the American Medical Association*. The subtitles are "The Digestive System" and "The Peripheral Spinal Nerves." A limited number of copies of these guides may be obtained, without charge, by writing to the Committee on Rating of Mental and Physical Impairment, AMA, 535 North Dearborn Street, Chicago, Ill. 60610.

**Colonel Richard I. Crone, MC, USA,** Chief of the Department of Medicine at Walter Reed General Hospital, has succeeded Colonel Edwin L. Overholt as Consulting Editor of the MEDICAL ANNALS. Colonel Overholt was ordered to Fitzsimons General Hospital in Denver, Colorado, in June.

Physicians throughout the Nation were shocked to learn, September 3, of the **death of Dr. Norman A. Welch,** of Boston, who took office as the 118th President of the American Medical Association at its Annual Meeting in San Francisco, June 23. He was stricken the preceding evening with a massive cerebral hemorrhage at Jackson Park Lodge, Moran, Wyoming, where he was to address a dinner meeting of the Wyoming State Medical Society.

Dr. Welch was a member of the AMA's House of Delegates for 12 years, serving as its Speaker from 1959 to 1963. He was a consultant physician to 5 Massachusetts hospitals. He served as President of the Massachusetts Medical Service (Blue Shield) from 1950 to 1963 and as Chairman of the National Blue Shield Commission from 1955 to 1958.

He had accepted an invitation to speak at the Annual Luncheon during the D. C. Medical Society's ANNUAL SCIENTIFIC ASSEMBLY.

He has been succeeded in office by Dr. Donovan F. Ward, of Dubuque, Iowa, who was named President-elect at the recent June meeting. A new President-elect will be selected by the AMA's House of Delegates during its Clinical Meeting in Miami Beach, November 29–December 2, 1964.

## Personals

**Dr. Bruce I. Shnider,** Associate Dean and Associate Professor of Medicine and Pharmacology at Georgetown University School of Medicine, has been appointed a member of the Clinical Studies Panel. This Panel reviews and makes recommendations to the National Advisory Cancer Council on all applications for chemotherapy coöperative group grants. In addition, it assesses the state of knowledge in the field of treatment of cancer with drugs, seeks promising avenues of approach, evaluates progress, and advises on the technical aspects of the program. The appointment became effective July 1, 1964.

**Dr. Daniel F. Lynch,** oral surgeon and Past President of the American Dental Association, was one of 35 medical and dental scientists who

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CONTRAINDICATION: Anuria.

1. Steigmann, F., and Griffin, R.: Evaluation of Quinethazone, a New Diuretic. J. Amer. Geriat. Soc. 11:945 (Oct.) 1963.

2. Schwartz, M.: Office Evaluation of a New Diuretic in Patients with Hypertensive Diseases. Scientific Exhibit Presented at the Clinical Meeting of the American Medical Association, Los Angeles, California, Nov. 25-28, 1962.

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received Achievement Awards from the University of Minnesota at the Mayo Centennial Convocation, September 17, in Rochester, Minn. The Convocation was held in conjunction with a 2-day Mayo Centennial Symposium entitled "Mirror to Man—Man's Adaptation to His Expanding Environment." The honorees, including 7 foreign scientists, are all alumni of the University's Mayo Foundation for Medical Education and Research. Two other recipients of awards are also well known to Washington physicians: the Honorable Walter H. Judd, Congressman from Minnesota, and Dr. Edward C. Rosenow, Jr., of Philadelphia, Executive Director of the American College of Physicians.

**Dr. Wellington Hung,** on the staff of Children's Hospital Research Foundation, was granted an additional $11,931 from the District of Columbia Division of the American Cancer Society to continue his studies on "Hormone Synthesis of Normal and Malignant Thyroid Cells in Tissue Cultures." His grant was the renewal of an initial one made by the Cancer Society in March, 1963. He is an Associate member of the D. C. Medical Society.

**Dr. John R. Cavanagh,** Washington psychiatrist, has been designated the official representative of the American Medical Association to the First European Congress of Catholic Doctors to be held in Valetta, Malta, September 6–10, 1964. Dr. Cavanagh and his family will reside for the coming year in Italy. His address is Via Marsilio Ficino 5, Rome, Italy.

**Dr. Charles D. Shields,** President of the American Congress of Physical Medicine and Rehabilitation, presided at its 42nd Annual Session, held at the Statler-Hilton Hotel in Boston, August 23–28. Dr. Shields is Executive Director of Georgetown University Hospital and Professor of Physical Medicine and Rehabilitation at Georgetown University School of Medicine.

**Dr. William G. Battaile** was elected to the Board of Directors of the American Association of Blood Banks, August 26, during its annual meeting in Washington.

### Postoperative Pain--Cottingham

(*Continued from page 498*

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### Ovarian Disgerminoma--Miale and Kesler

(*Continued from page 502*)

The authors are indebted to Lieutenant Robert Fitzgerald, MC, USN, Department of Pathology, U.S. Naval Hospital, who performed the postmortem examination.

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Pending discovery of the cause, early cessation of diarrhea is almost always urgently indicated. Prompt symptomatic control averts distress, dehydration and, frequently, severe exhaustion.

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## dosage:

The recommended initial *adult* dosage is two tablets (2.5 mg. each) three or four times daily, reduced to meet the requirements of each patient as soon as the diarrhea is controlled. Maintenance dosage may be as low as two tablets daily. *Children's* daily dosage (in divided doses) varies from 3 mg. for a child of 3 to 6 months,to 10 mg. for one 8 to 12 years of age.

## cautions and side effects:

Lomotil is an exempt narcotic; its abuse liability is low and comparable to that of codeine. Recommended dosages should not be exceeded. Side effects are relatively uncommon but among those reported are gastrointestinal irritation, sedation, dizziness, cutaneous manifestations, restlessness and insomnia. Lomotil should be used with caution in patients with impaired liver function and in patients taking addicting drugs or barbiturates.

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* AMA Council on Foods and Nutrition: The Regulation of Dietary Fat, *JAMA* 181:411-423 (August 4, 1962).
AMA Council on Foods and Nutrition: Composition of Certain Margarines, *JAMA* 179:719 (March 3, 1962).

# BOOK REVIEWS

**Gastroenterology**, Volume II, 2nd ed. HENRY L. BOCKUS, M.D. Price, $28.00. Pp. 1241, illustrated. Philadelphia: Saunders, 1964.

This is a tremendous book of about 12 hundred pages packed with the latest knowledge of the small intestine and colon. There is a new section on Disorders of Absorption and on Anemias in Gastrointestinal Disorders. The chapters on Enteritides, Malabsorption Syndromes, and Ulcerative Colitis are very well explored, with extensive references.

Steroid Therapy in Intestinal Diseases, Differential Diagnosis of Diarrhea, and Whipple's Disease are well presented and informative. This book is highly recommended for every gastroenterologist and internist and is unequaled as a reference book for practitioners.

AZAD J. VOSGER, M.D.

**Fundamentals of Otolaryngology. A Textbook of Ear, Nose and Throat Diseases,** 4th ed. LAWRENCE R. BOIES, M.A., M.D., JEROME A. HILGER, M.D., M.S., AND ROBERT E. PRIEST, M.D., M.S. Price, $8.50. Pp. 553, with 215 illustrations. Philadelphia: Saunders, 1964.

This new edition contains 43 more pages and 3 more illustrations than the previous edition of 1959 and now has 2 co-authors, but its format is essentially the same as the previous editions. The editions have evolved from lectures given at the University of Minnesota to the medical students, and it is at the undergraduate level the book is most useful. It would also make a compact, inexpensive reference for the non-otolaryngologist because it is both modern and inclusive of ancient remedies, such as silver nitrate and Argyrol,® which "is contrary to the dictates of nasal physiology but seems satisfying to the patient."

The table of contents lists the same 36 chapters as the previous edition, but the subsections are no longer indexed; thus this portion has lost value as a study outline for student and teacher. References are complete and follow each chapter, with many as recent as late 1963.

The broadening scope of otolaryngology in the last 20 years is encompassed with a good discussion of broncho-esophagology, maxillofacial, reconstructive and tumor surgery, salivary gland disease, and, of course, the recent "growth issue," microsurgery of the ear.

The drawings, X-rays, and photographs (some in color) are all well reproduced. This is the volume which I as a teacher would most wish my students to have in the coming year.

WILLIAM M. TRIBLE, M.D.

**Ocular and Adnexal Tumors. New and controversial aspects.** Symposium sponsored by Department of Ophthalmology, Baylor University College of Medicine. MILTON BONIUK, M.D., Editor. Price, $25.00. Pp. 511, with 363 figures and 4 color plates. St. Louis: Mosby, 1964.

Presented herein is the material discussed at an International Symposium on Ocular Tumors, held on the occasion of the dedication of the new research facilities of the Institute of Ophthalmology of the Texas Medical Center in Houston, Texas, on November 12, 13, and 14, 1962.

The contents are divided into 4 sections: I. Tumors of the Conjunctiva and Eyelid; II. Retinoblastoma; III. Pigmented Intraocular Tumors; and IV. Orbital Tumors. The Symposium emphasized controversial aspects in the diagnosis and management of these tumors, with discussions by several authorities in each area. The book succeeds well in bringing out the clinical and histologic problems in diagnosis, and the varying views of the ophthalmologist, radiotherapist and neurosurgeon in treatment of orbital tumors.

In addition, there are several special chapters on surgical technique, chemotherapy, radiation therapy, photocoagulation, and ultrasonography scattered through appropriate sections. The illustrations are numerous and of generally good quality. Most authors have supplemented their presentations with references for those who desire further information directly from source material.

In general, this is a book of considerable interest not only to the resident in ophthalmology, who should read it with some care, but also to ophthalmologists confronted with problems of management of lid and ocular tumors. Its use as a reference text in these areas is assured for some time.

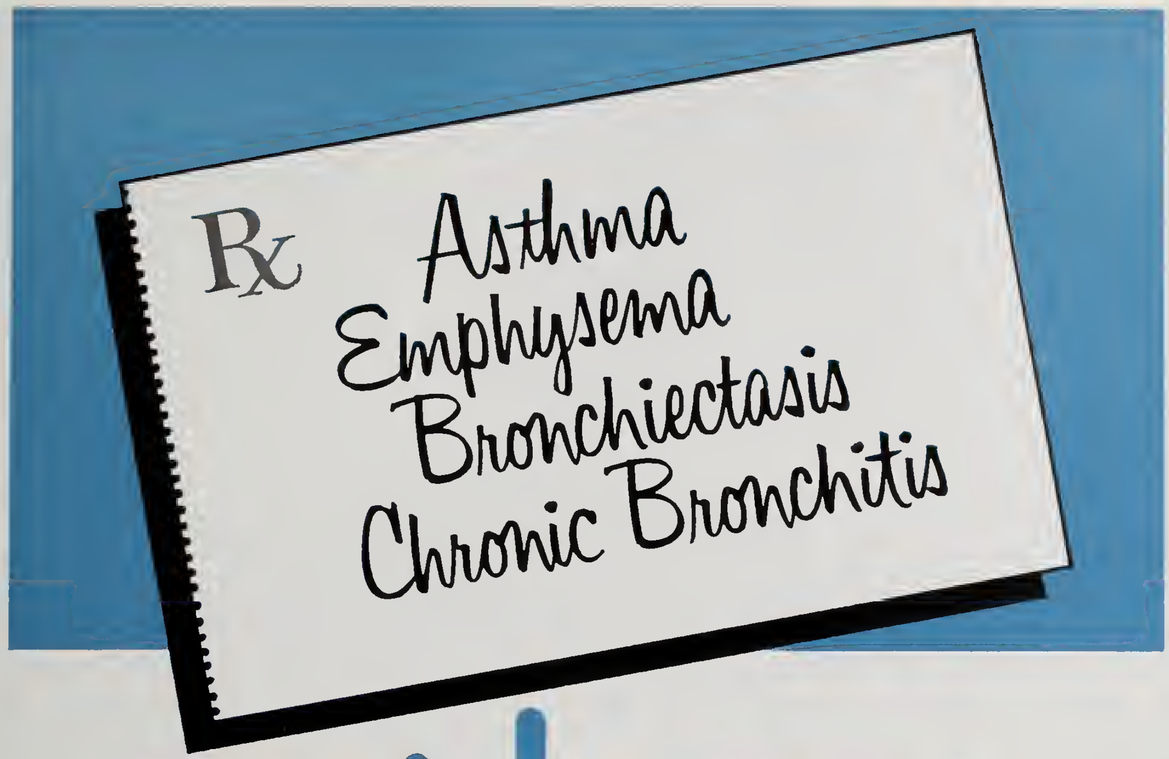
KENNETH A. SIMON, M.D.

**The Armed Forces Institute of Pathology. Its First Century 1862–1962.** ROBERT S. HENRY, A.B., LL.B., LITT.D., Office of the Surgeon General, Department of the Army. Price, $4.25. Pp. 422, with 138 illustrations. Washington, D. C.: U. S. Government Printing Office, 1964.

Physicians in the Washington area are fortunate to have available for consultative and research purposes a number of medical establishments associated with the Federal Government of the United States. Ranking high among these is The Armed Forces Institute of Pathology. It was very fitting that upon its 100th anniversary the story of its rise from modest beginnings to recognition as one of the outstanding medical institutes of the world should be recorded. It is especially fortunate that the resulting volume is handsomely bound, well printed on high quality paper, abundantly illustrated, interestingly written, and bargain-priced.

Dr. Henry not only relates in detail the development of what is now The Armed Forces Institute of Pathology but he also includes short biographies of many of the men who have been responsible for its growth. Extensive chapters on the work of the Yellow Fever Commission under Major Walter Reed in Cuba and the development and introduction of the typhoid

*(Continued on page 28)*



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### Book Reviews

(*Continued from page 26*)

vaccine under Major (later General) Frederick F. Russell are included. The author has spiced his narrative with humorous and sometimes macabre incidents. He treats all aspects of the work of the Institute, including its service, publishing, educational, research, and geographic aspects, dealing in perhaps too great detail with the organizational setup of the Institute as it is now constituted.

This history of The Armed Forces Institute of Pathology should be fascinating to all physicians of the Washington area because it is so closely intertwined with the history of medicine in our Nation's Capital. Many of the men associated with the Institute's development have familiar names, and a few stand among "the immortals of medicine." The book is of interest to physicians everywhere because it relates how, because of the devotion, zeal and vision of a relatively few men, what began as the Army Medical Museum grew from the "top of (the) desk" of its first Curator to the massive, bomb-resistant edifice of the present Armed Forces Institute of Pathology. Paralleling the story of the physical growth of the Institute is that of how it has become one of the most respected medical establishments of the world.

Frank N. Miller, M.D.

**School Health Education Study 1961–1963. Summary Report of a Nationwide Study of Health Instruction in the Public Schools.** Sponsored by the Samuel Bronfman Foundation of New York City. Elena M. Sliepcevich, Director of the Study. Pp. 74. Washington, D. C.: School Health Education Study, 1964.

This attractive and easy-to-read report should be read by every physician. It is seldom that a subject involving the health of our Nation receives such intense, intelligent and widespread consideration.

Impetus for the present study came from the efforts of a Public Health administrator, a private physician, and 3 educators.

The School Health Education Study began in September 1961 with a grant from the Samuel Bronfman Foundation of New York City. The Foundation has extended support of the Study through December 1965. This summary volume reflects the activities of the first 2 years of the School Health Education Study.

Five organizations and agencies closely related to health education have coöperated by providing representation on the committee. The groups are the National Education Association, United States Office of Education, American Medical Association, United States Public Health Service, and the National Congress of Parents and Teachers.

The first publication of the School Health Education Study, published in July 1963, was a volume titled, "Synthesis of Research in Selected Areas of Health Instruction."

The School Health Education Study was designed to meet the need for current information on the Nationwide status of health instruction practices in the public schools.

Basic knowledge about health is essential if each individual is to take prompt advantage of the advances of medical science, protect himself against the hazards of medical quackery, and achieve for himself, his family, and his community an optimal level of health.

The Health Education Study will have a profound effect on health education in the school curricula of the future. The private physician's interest and participation in school health problems can make a definite contribution.

The World Health Organization defines health as "a state of complete physical, mental, and social wellbeing, not merely the absence of disease or infirmity."

The scope of health education is broad; it covers the nature of disease, the complexity of nutrition, effects of radiation, behavioral aspects of accident prevention, an understanding of health and medicare programs, significance of international health problems, selection of health products and services, foundations of mental health, and preparation for marriage and parenthood. Health education must motivate the individual toward healthful living.

What is taught in the schools must be so related to the daily lives of the students that they can act intelligently in matters of health.

The activities of the School Health Education Study can be followed by every physician through the publications made available by the Bronfman Foundation.

You will find it interesting and stimulating to read. It is rewarding to realize that such extensive effort is being made in the field of health.

Single copies of this report are available upon request from the Director, School Health Education Study, 1201 Sixteenth Street, N.W., Washington, D. C.

Harold M. Hobart, M.D.

**Patient Care and Special Procedures in X-ray Technology,** 2nd ed. Carol Hocking Vennes, R.N., B.S., and John C. Watson, R.T. Price, $6.25. Pp. 228, with 78 illustrations. St. Louis: Mosby, 1964.

The material is well divided into 11 chapters with an excellent reference list at the end of each chapter. Thus it provides an extensive bibliography for the student desiring to study the subject in more detail. The expected aims and duties of an X-ray technician are well defined, with the care and safety of the patient while in the X-ray Department adequately outlined. The patient-technician relationship and responsibility are well expressed. The book is not a necessity in the radiologist's library but it is considered essential for students and teaching hospitals. It is recommended for the graduate technician as a handy reference to the special procedures and sterile techniques used daily in the busy X-ray Department.

William S. Cole, M.D.

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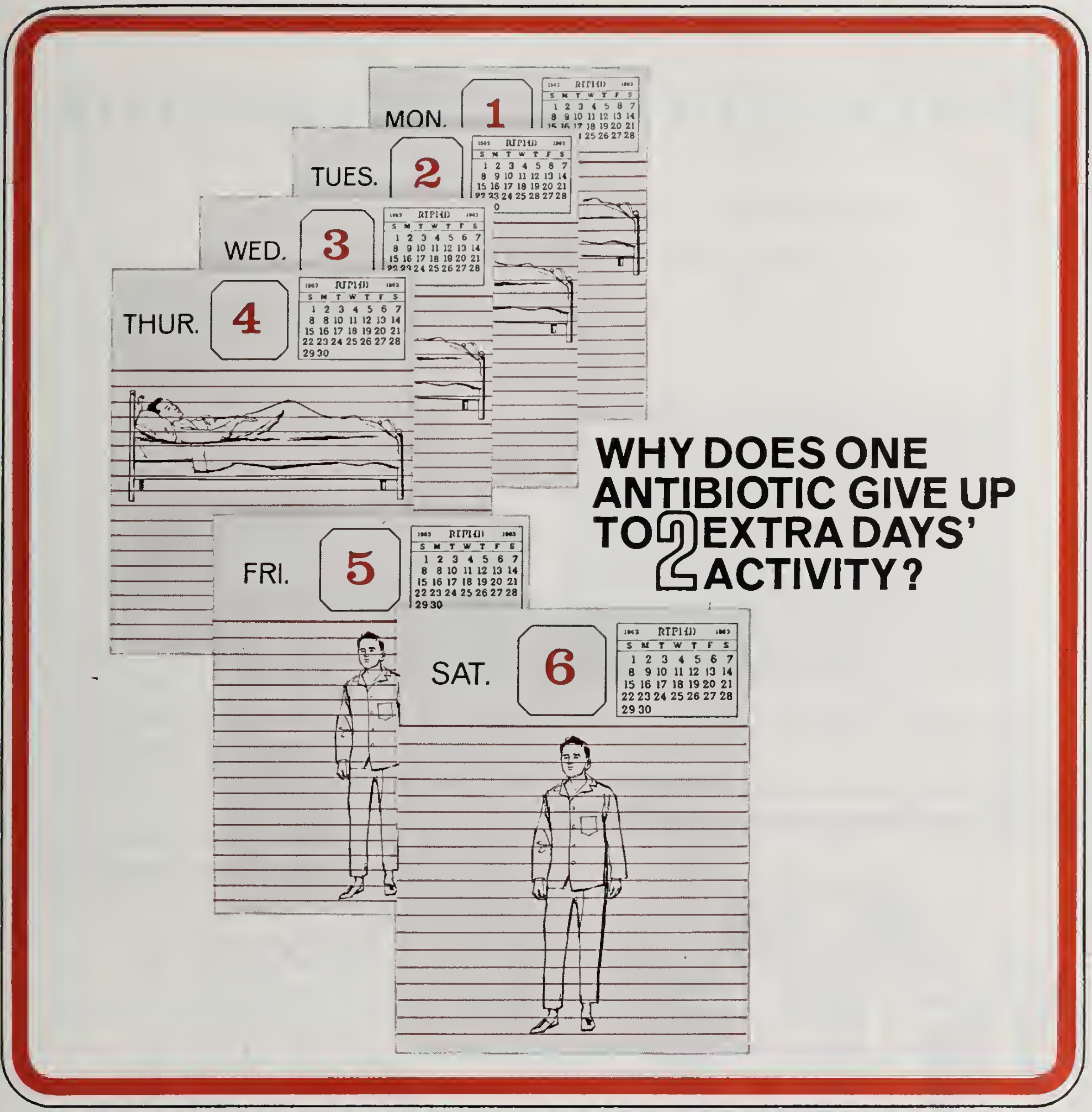
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October 28–30: American Cancer Society. Biltmore Hotel, New York. Address: Mr. Lane W. Adams, 219 East 42nd Street, New York, N. Y. 10017

October 29–31: National Stroke Congress (American Medical Association). Palmer House, Chicago. Address: Dr. Ralph E. De Forest, *Executive Secretary*, National Stroke Congress, 535 North Dearborn Street, Chicago, Ill. 60610

November 9–12: Interstate Postgraduate Medical Association of North America. Pittsburgh Hilton Hotel, Pittsburgh. Address: Mr. Roy T. Ragatz, *Executive Director*, Box 1109, Madison 1, Wisc.

**November 9–13: American College of Chest Physicians: Postgraduate Course No. 5. Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs. International Inn, Washington. Address: Executive Director, ACCP, 112 East Chestnut Street, Chicago, Ill. 60611**

**November 13–15: Association of Clinical Scientists. Statler-Hilton Hotel, Washington, D. C. Address: Dr. Robert P. MacFate, Secretary-Treasurer, 54 West Hubbard, Chicago, Ill.**

**November 16–18: Annual Scientific Assembly, The Medical Society of the District of Columbia. Hotel Statler-Hilton, Washington. Address: Mr. George W. Cooley, Executive Director, 1718 M Street, N.W., Washington, D.C. 20036**

November 16–19: Southern Medical Association. Memphis, Tenn. Address: Mr. Robert F. Butts, *Executive Director*, 2601 Highland Avenue, Birmingham 5, Ala.

November 20–21: American Psychiatric Association. Bellevue Stratford Hotel, Philadelphia. Address: Dr. Philip Mechanick, Ford Road and Monument Avenue, Philadelphia, Pa.

**November 22–24: The Second National Conference on Cardiovascular Diseases. Sheraton-Park Hotel, Washington. Address: Dr. Cyrus H. Maxwell, Executive Secretary, 9650 Wisconsin Avenue, Washington, D. C. 20014**

November 29–December 2: Clinical Meeting, American Medical Association. Auditorium and Exposition Hall, Miami Beach, Fla., and Americana Hotel, Bal Harbour, Fla. Address: Dr. F. J. L. Blasingame, *Executive Vice President*, 535 North Dearborn Street, Chicago, Ill. 60610

December 5–6: The Academy of Psychoanalysis. New York City. Address: Dr. Alfred H. Rifkin, *Secretary*, 125 East 65th Street, New York, N. Y. 10021

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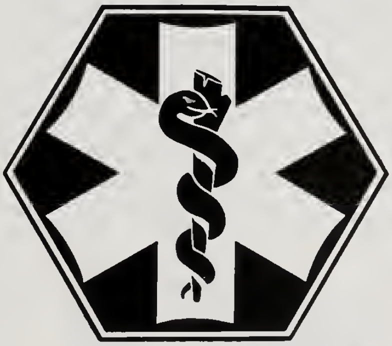

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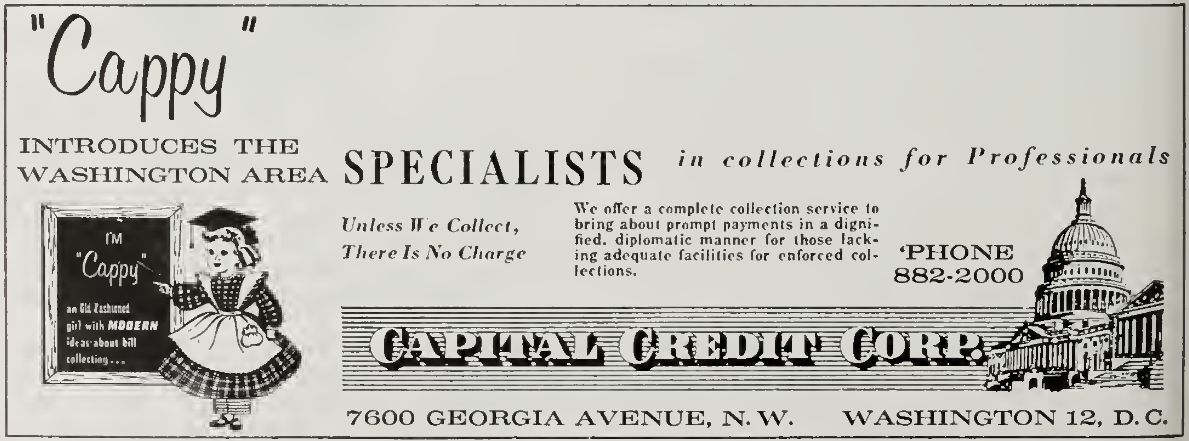

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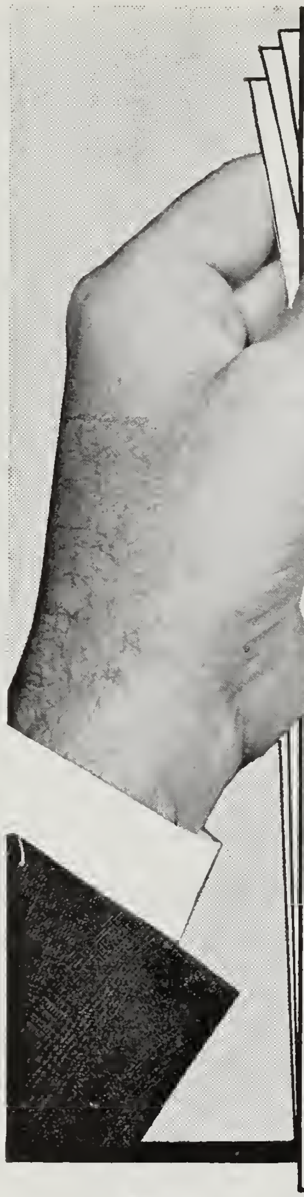

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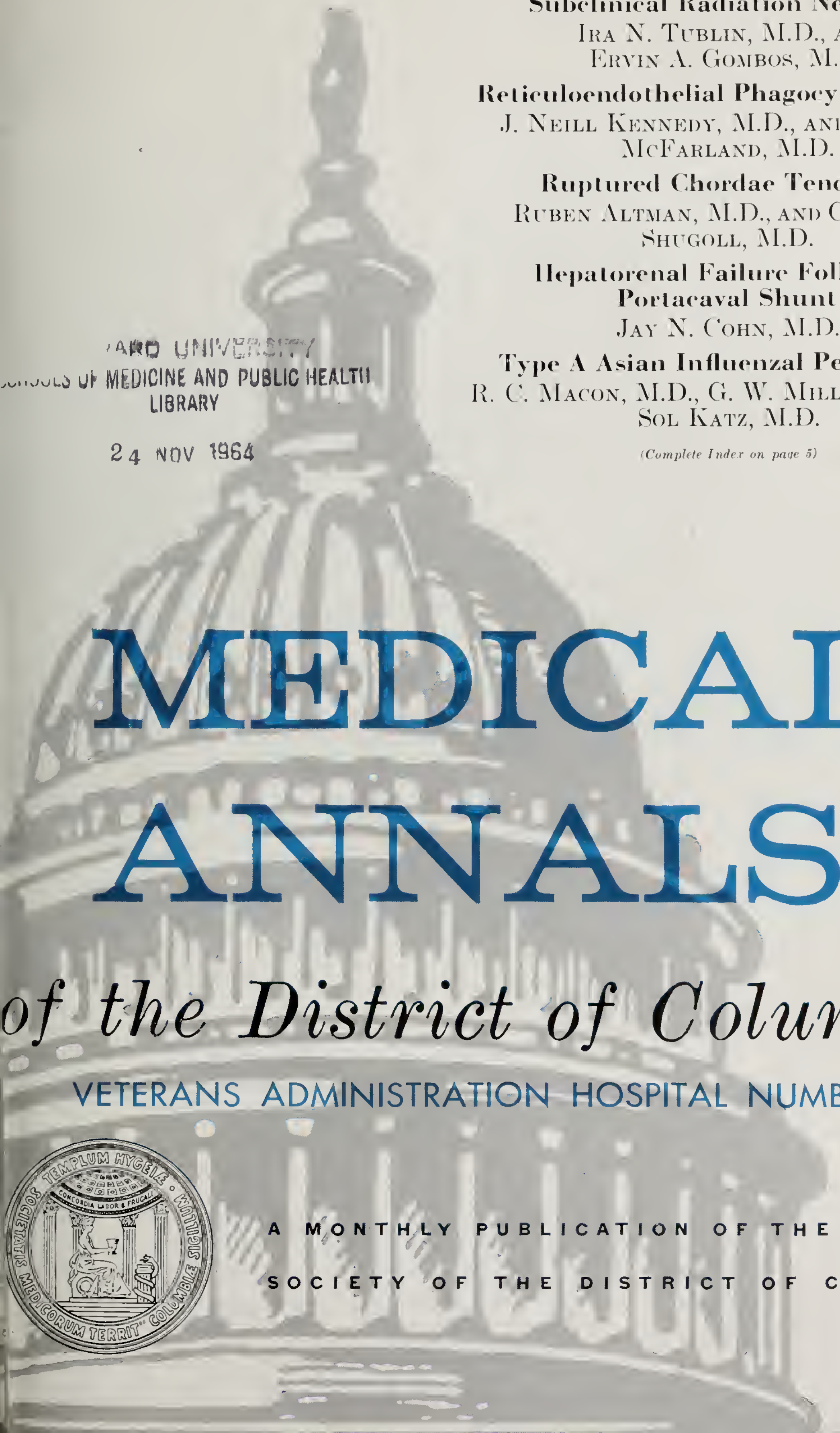

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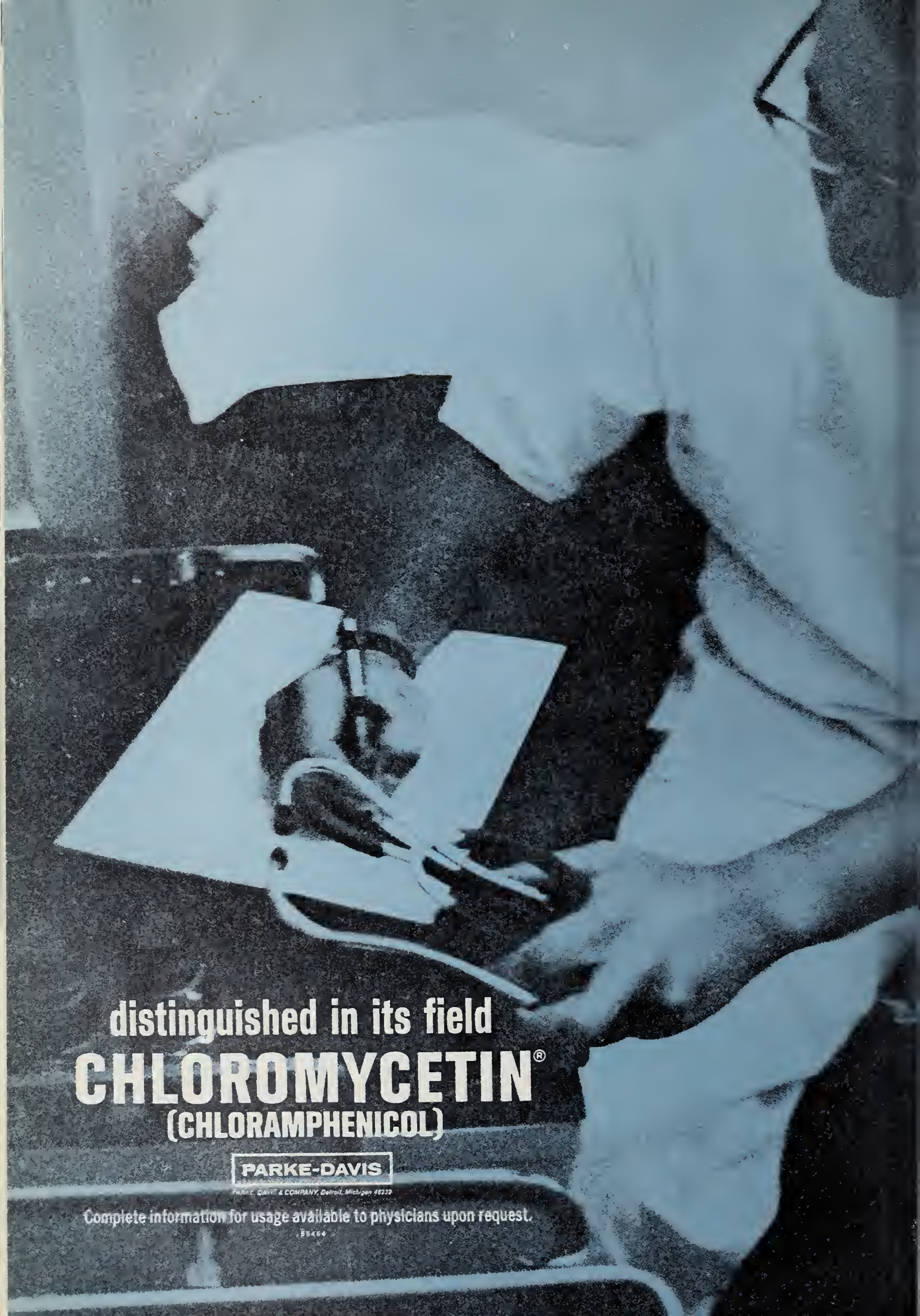
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* AMA Council on Foods and Nutrition: The Regulation of Dietary Fat, *JAMA* 181:411-423 (August 4, 1962).
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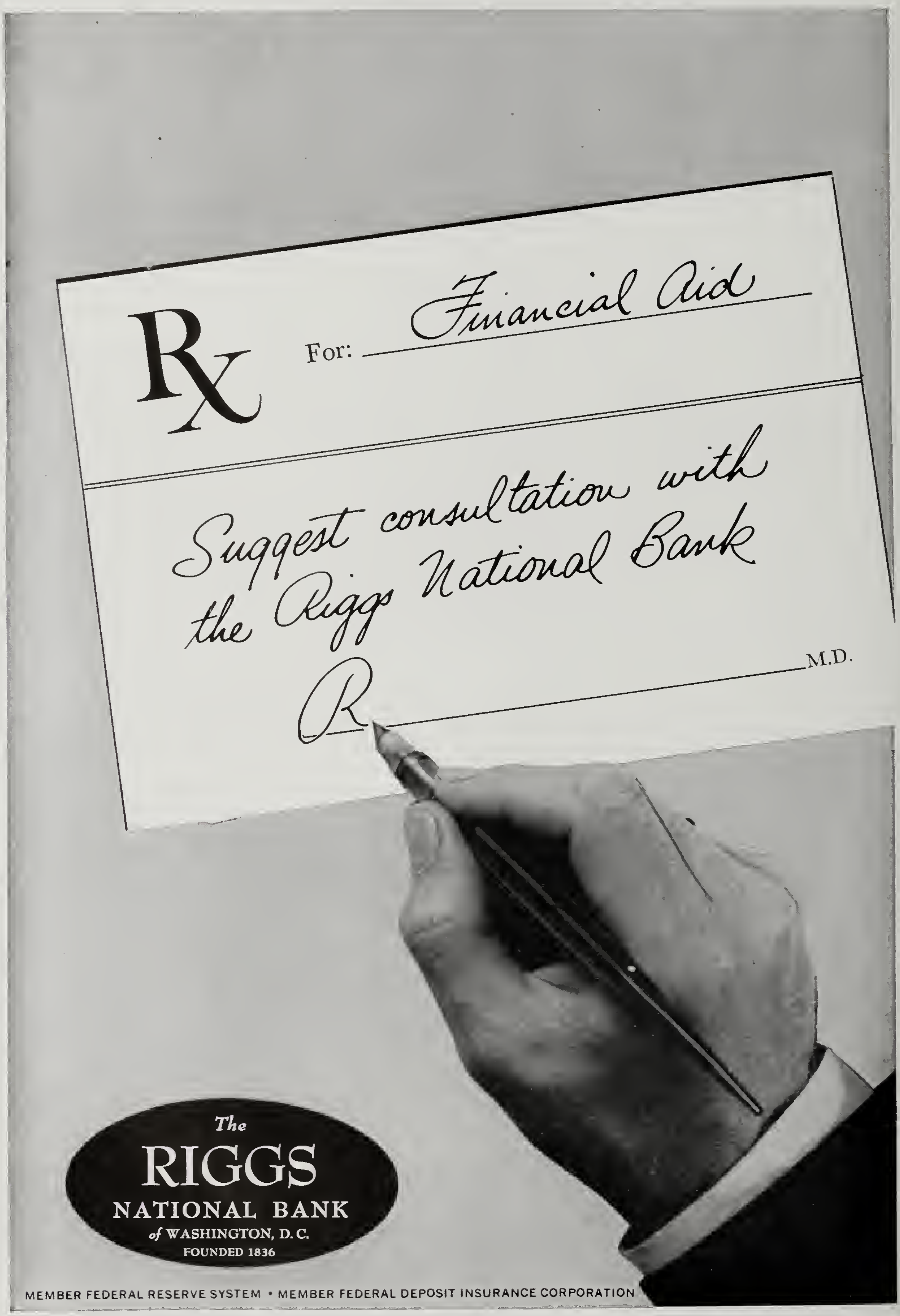
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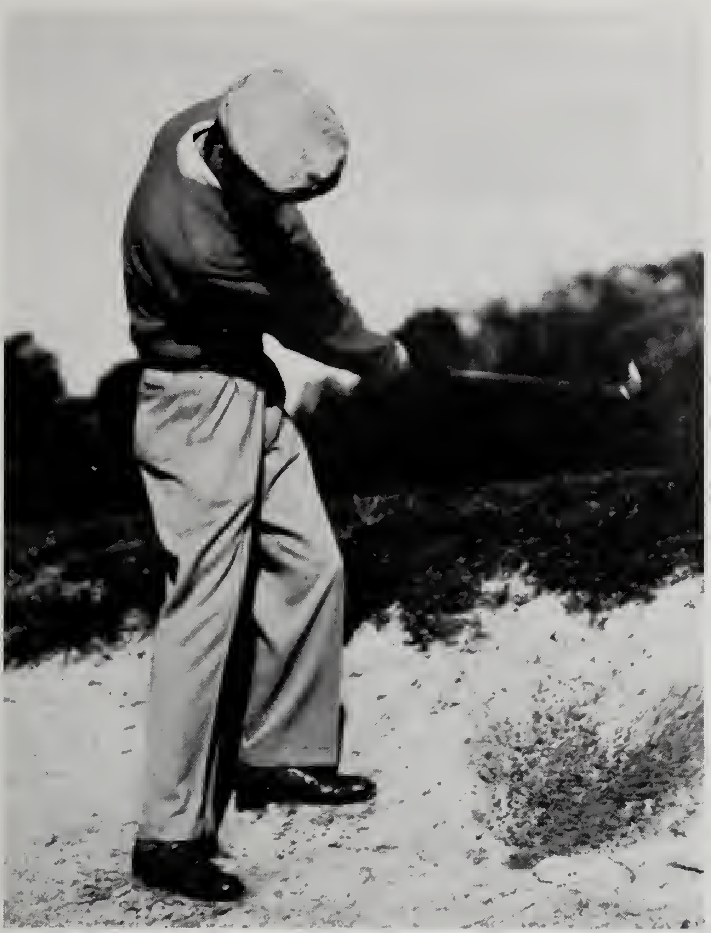

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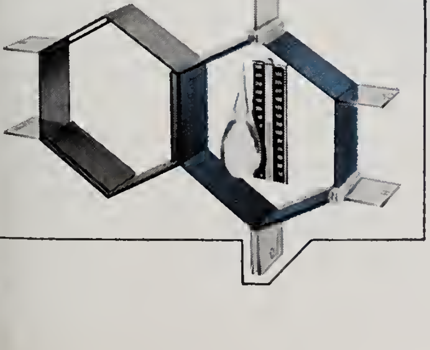

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# BOOK REVIEWS

**Report of The Commission on the Cost of Medical Care, American Medical Association, 1964. Volume I. General Report.** David B. Allman, M.D., Chairman. Price, $4.00. Pp. 182. Chicago: American Medical Association, 1964.

In June of 1960 the Committee on the Cost of Medical Care of the AMA was authorized to study the cost of medical care. The study has been completed, and the first of 4 volumes is published under the title "General Report." It is available from the Order Department of the American Medical Association, 535 North Dearborn Street, Chicago, Illinois. This "General Report" includes summaries of the succeeding Volumes II–IV.

Volume I is an attractive paperback, journal-size volume of 182 pages. Within these pages are found some 70 tables and charts, several diagrams, and a bibliography.

It requires more than casual reading, but who can afford to be casual when considering the economics of medical care in the USA today (which is the name of the second chapter)? Table 4 of this chapter is labeled "Hospital Utilization in the United States 1946–1962." Here one gleans such interesting bits of information as: Yearly admissions per 1,000 population had risen from 98.7 in 1946 to 132.3 in 1962. In the same chapter, Table 19 indicates that the average charge per patient-day was $9.39 in 1946 as compared with $36.83 in 1962. Length of stay had diminished from 9.1 to 7.6 days; but average charge per patient stay had increased, as we all expected, more than 3-fold. The "General Report" is replete with beguiling observations similar to these.

With so many publications competing for the physician's reading time, it is not likely that this report will be read in detail by the masses of the Nation's physicians; but if one could add an hour to his 24-hour day for the next several weeks, that time could well be spent on this report. It should be found on the desks of all of our colleagues and should be placed in the hands of responsible lawmakers.

Raymond O. West, M.D.

**Current Therapy—1964. Latest Approved Methods of Treatment for the Practicing Physician.** Edited by Howard F. Conn, M.D. Price, $13.00. Pp. 797. Philadelphia: Saunders, 1964.

The sixteenth annual edition of this volume follows closely the format and organization of the previous editions. Twelve outstanding consultants and 317 contributors have collaborated with the editor in producing an up-to-date and fairly concise volume, a ready source of reference in practical clinical case management. Information on common poisons and poison control centers, packaging information on common and current proprietary drugs, as well as a table of pediatric dosages are again included. This book will be found particularly useful to the internist, pediatrician and general practitioner.

Garo S. Matossian, M.D.

**Christopher's Textbook of Surgery,** 8th ed. Edited by Loyal Davis, M.D. Price, $18.50. Pp. 1481, with 1341 illustrations on 744 figures. Philadelphia: Saunders, 1964.

Since its first edition in 1936, "Christopher's Textbook of Surgery" has been an accepted authority in its field. While necessarily less detailed than the multivolumed works on this subject, it has managed to include in a single book a concise presentation of the essentials of every surgical specialty.

This latest edition maintains this traditional excellence. Nearly all of the chapters include some revisions that reflect current advances in research or technique. Some have been completely rewritten by new authors, presenting the material according to their individual preferences.

Dr. Loyal Davis serves for the fourth time as editor, and the 49 authors he has chosen are recognized authorities in their respective specialties. To introduce the reader to any of the contributors he may not recognize readily, Dr. Davis has again included a short biographical sketch of each author at the start of his own article.

Earlier editions included a chapter by Dr. Paul R. Hawley on "The Qualifications of a Surgeon," and the 1960 edition presented "Surgical Judgment" by Dr. Harold Laufman. These excellent nontechnical theses have now been supplemented by a chapter on "Horizons in Surgery" by Dr. Thomas E. Starzl.

Here Dr. Starzl has given us a concise but very informative survey of the current trends in surgical research plus some predictions of the possible advances the future may hold. Not only the surgeon but practically every physician will find this chapter intensely interesting and quite instructive. Since a review of this rapidly progressive phase of surgery would need to be revised frequently, it is to be hoped that Dr. Starzl will be available to amend this feature for many future editions.

The busy surgeon who wants concise current information and especially the medical student and surgical resident will all find the latest Christopher an excellent textbook and reference.

Robert U. Cooper, M.D.

**Textbook of Otolaryngology,** 2nd ed. David D. DeWeese, M.D., and William H. Saunders, M.D. Price, $9.25. Pp. 523, with 405 illustrations. St. Louis: Mosby, 1964.

This book, the second edition of a volume first introduced in 1960, is a must for medical students, interns, residents in all specialties, and general practitioners. I had the pleasure of reviewing the first edition of this fine book 4 years ago, and a comparison of both editions reveals very little change in format. The present edition has 56 more pages and 51 more illustrations than the first, due mainly to increased discussion of tympanoplastic operative procedures, diseases of the salivary glands, disorders and repair of the facial nerve, tumors

(*Continued on page 18*)

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## Book Reviews

(*Continued from page 16*)

of the head and neck, and speech problems. The authors divide the contents into 32 chapters which are well organized to facilitate reference. The book is written with such simplicity of style and clarity that reading it is a delight, and your reviewer found himself reading on as if the text were a novel, and then re-reading it several times in its entirety to thoroughly enjoy and assimilate its contents. The fine writing style is enhanced by 405 illustrations in black and white, including many actual photographs of office procedures, such as the use of the head mirror, the correct use of the tongue depressor, the correct way to examine the external auditory canal and tympanic membrane, and the proper way to inspect the nasal cavities, to mention but a few.

The first 11 chapters of the text deal with the oral cavity, larynx and esophagus. Chapter 4 on the tonsils and adenoids gives in 15 pages the finest discussion of anatomy, indications for surgery, surgical technique, and care of post-T and A hemorrhages the reviewer has ever seen in a text of this size and scope. Chapter 9 devotes 9 pages to tracheotomy which should be read and re-read many times by every practitioner, regardless of his field.

Chapters 12 to 17 deal with the nose and paranasal sinuses. Mention must be made of chapter 13 with its 10 pages devoted to epistaxis. The authors present in their very fine style the anatomy of nosebleed, the reasons for nosebleed, the correct ways to pack for nosebleed, and common errors and misconceptions in this very frequent and at times exasperating entity which confronts all practitioners. This chapter on epistaxis contains the finest discussion of this ailment to appear in medical literature in many years.

Chapters 18 to 26 present the human ear very ably, concisely and interestingly. Tuning fork tests and modern pure tone audiometry are completely and understandably discussed. Several chapters are devoted to discussion of modern methods of restoring hearing by tympanoplastic procedures. The final 6 chapters deal with speech disorders, rehabilitation of patients with hearing loss, vertigo, facial nerve disturbances, the salivary glands, and tumors of the head and neck.

All students and practitioners must avail themselves of this book; they will refer to it over and over again and will enjoy assimilating its contents and making use of the information contained therein. The book is indeed a work of art.

Seymour Itscoitz, M.D.

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**Ciba Foundation Study Group No. 17: Diet and Bodily Constitution.** Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P., and Maeve O'Connor, B.A. Price, $2.95. Pp. 120, with 31 illustrations. Boston: Little, 1964.

It is refreshing to be stimulated by a book which brings to awareness how much is unknown about the known. "Diet and Bodily Constitution" is a concise book, yet it seems to raise more questions than it answers.

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**references:*** Boyd, E. M., and Ronan, A. K.: Am. J. Physiol., 135:383, 1942.

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## Veterans Administration Hospital Number

THIS IS THE EIGHTH of a third series of special numbers of the MEDICAL ANNALS, the scientific material for which is supplied by medical institutions and scientific organizations in the Washington Metropolitan Area. For the VETERANS ADMINISTRATION HOSPITAL NUMBER the Editorial Board is indebted to Dr. Walter Kurland, Consulting Editor of the MEDICAL ANNALS, who secured the papers which appear in this issue.

# Symposium on Hyperparathyroidism

**ROBERT KATZ, M.D.**
**KENNETH BECKER, M.D., Ph.D.**
**PETER I. KENMORE, M.D.**
**GEORGE A. HIGGINS, M.D.**

*Veterans Administration Hospital, Washington*

## General Considerations

ROBERT KATZ, M.D.*

*Formerly Resident, Medical Service, Veterans Administration Hospital*

DURING the past 15 years it has become evident that primary hyperparathyroidism is not rare, that its manifestations may be protean, and that it may be mimicked by many other diseases. The parathyroid glands were discovered by Sandstrom[1] in Sweden in 1880. In 1896 Vassale and Generali[2] produced tetany in dogs and cats by removing their parathyroid glands. Askanazy,[3] in 1903, described a parathyroid adenoma in a patient who died with von Recklinghausen's disease of bone. The relationship between the parathyroid glands and bone disease was postulated by Erdheim.[4] The first parathyroidectomy was performed by Mandl[5] in 1925. In the same year Collip[6] established the endocrine role of the parathyroid glands and described their influence on calcium metabolism. He also prepared the hydrochloric acid extract of the parathyroid gland and showed that it contained the biologically active principle. Rasmussen and Craig[7] then isolated the purified hormone in 1959.

The parathyroid hormone is a homogeneous single chain polypeptide with a molecular weight of approximately 9,500.[8] One of its most important functions is to maintain the normal level of serum calcium by acting at multiple sites. The relative effect of excess hormone at each of these sites is variable from patient to patient. The result of parathyroid hormone action on bone is to mobilize calcium. However, the exact mechanism of this action is obscure. One theory is that the hormone stimulates an increase in the production of organic acids by the bone cells, causing calcium to be liberated into the circulation. Parathyroid hormone also causes an increase in urinary phosphate excretion, which is primarily due to decreased reabsorption of phosphate in the renal tubule.[9, 10] Another action of parathyroid hormone may be to increase gastrointestinal absorption of calcium, although this has been noted to be of small magnitude. Its effect on lactation is probably to conserve serum calcium by decreasing transport of calcium from the blood to the milk.

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* Presently Resident in Dermatology at Jackson Memorial Hospital, Miami, Florida.

It is now evident that purified parathyroid hormone contains both calcium-mobilizing and phosphaturic activities.[8] Seemingly, the parathyroid gland does not depend upon other endocrine glands for trophic stimuli, nor is it controlled by neural mechanisms. Parathyroid hormone secretion is dependent upon the concentration of ionic calcium in the blood perfusing the parathyroid glands, a high concentration inhibiting secretion and a low concentration stimulating secretion. The existence of another parathyroid hormone has been proposed recently. It is postulated that this hormone has a hypocalcemic action and is secreted in response to hypercalcemia, and it has been called calcitonin.[11] However, evidence for the existence of this hormone in man has not been demonstrated.[12]

Classically, hyperparathyroidism has been characterized as a "disease of bones, stones, abdominal groans, and psychic moans." [13] In recent years the frequency of bone involvement in this disease has decreased.[14, 15] This may be due to the fact that the diagnosis is being made earlier during the course of the disease or that the present-day American diet contains a larger amount of calcium. When the bones are involved to an extreme degree one may encounter osteitis fibrosa cystica, pathologic fractures, or skeletal deformities. However, milder degrees of skeletal involvement are more frequent, causing vague pains and backache. Arthritis and articular symptoms have been noted by Zvaifler and his co-workers[16] who also described nonspecific synovial and periarticular calcifications. An early roentgenologic finding is subcortical bone resorption, best visualized in the phalanges and the ends of the clavicles. The loss of lamina dura as seen on dental X-ray films is a helpful but overemphasized finding. Osteoporosis may be present but is often radiographically indistinguishable from osteoporosis due to a variety of other diseases; however, miliary osteoporosis of the skull may be an important clue leading to the diagnosis of hyperparathyroidism.

Patients with hyperparathyroidism most frequently come to the physician with genitourinary symptoms. It has been estimated that approximately 5 per cent of patients with renal lithiasis and 15 per cent of patients with recurrent renal lithiasis have hyperparathyroidism as the underlying disorder.[17] The nephrolithiasis may be associated with nephrocalcinosis, pyelonephritis, and severe progressive renal disease. Symptoms referable to the gastrointestinal system such as anorexia, constipation, nausea, vomiting, and unexplained abdominal pain may predominate. Peptic ulcer has been noted in 10 to 30 per cent of hyperparathyroid patients, although this apparent propensity has not been confirmed by some investigators. The ulcer symptoms may be intractable and may be aggravated by milk and antacids. The mechanism of peptic ulcer production in these patients is obscure. Apparently, gastric secretion is not increased. Recurrent episodes of acute pancreatitis are not infrequent and may be associated with pancreatic lithiasis, and the concomitant hypercalcemia may be obscured due to a lowering of the serum calcium during an acute attack of pancreatitis.

The association of the syndrome of adenomata of multiple endocrine glands with primary hyperparathyroidism has been noted in several reviews. Adenomata of the anterior pituitary gland and of the islet cells of the pancreas may occur and may be present either with or without acromegaly and hyperinsulinism.[18]

Hypercalcemia may be asymptomatic or may result in malaise, generalized weakness, psychiatric symptoms, polyuria and polydipsia. Muscle weakness may be marked and may be the major complaint. The frequency of frontal headaches has been noted. The presence of band keratopathy has been observed in approximately one-third of these patients. Many of the aforementioned symptoms may rarely progress to parathyroid crisis which is rapidly fatal if it is not treated.[19] During this clinical state the patient may complain of intractable nausea, vomiting, constipation and abdominal pain. He is acutely ill and prostrate and may be in circulatory collapse. Lethargy and coma may follow and death occur.

Diagnostically, hypercalcemia is the most important biochemical finding in hyperparathyroidism,[15, 20] and the finding of a repeatedly normal serum calcium virtually excludes the diagnosis.[21] In many instances the serum calcium may be borderline or only slightly elevated, and in these instances the hypercalcemia may be accentuated by preparing the patient with a low phosphate diet.[14, 21] Some investigators have used the measurement of the ionic calcium in the blood as an aid in the delineation of hypercalcemia, but others disagree with the usefulness of this procedure. In normal people urinary excretion of calcium should be less than 200 mg. per day when they are on a low calcium diet.[20] The urinary calcium is usually increased in hyperparathyroidism but may become normal with ensuing renal impairment.[15] Also, urinary calcium may be high in 22 to 59 per cent of chronic stone formers without underlying metabolic disease and in hypercalcemic states of other etiologies.

The serum phosphate is often decreased in primary hyperparathyroidism, and this hypophosphatemia may be accentuated by a low phosphate intake.[14] However, in some series up to 40 per cent of the patients with this disease have a normal serum phosphate, this percentage increasing further in the presence of significant azotemia.[15] The alkaline phosphatase is not diagnostic, being increased when there is bone involvement. The measurement of phosphate clearance and the comparison of this test before and after the administration of a calcium infusion has been used extensively by Kyle and his co-workers,[20, 22] and it is their impression that the phosphate clearance test is superior to the serum phosphate level in the diagnostic work-up of patients for primary hyperparathyroidism. Phosphate clearance is increased in hyperparathyroidism and is not suppressed by a calcium infusion. The tubular reabsorption of phosphate (TRP) is another test which has received widespread use. However, it has been noted that there may be considerable overlap of TRP values between normal people and patients with primary hyperparathyroidism.[10, 23] A significant modification of this test has been described by Becker et al,[24] in which the TRP is measured before and after exogenous parathyroid hormone administration. This test has been useful in differentiating between normal people and patients with hyperparathyroidism, and it may also be of use in separating patients with hyperparathyroidism from patients with other hypercalcemic states.

Large doses of cortisone suppress the elevated serum calcium in some hypercalcemic states other than hyperparathyroidism. However, several cases of hyperparathyroidism have been reported in which the serum calcium decreased in response to cortisone administration.

The differential diagnosis of primary hyperparathyroidism encompasses those disease states which may cause hypercalcemia, such as malignant disease, sarcoidosis, milk-alkali syndrome, hyperthyroidism, acute osteoporosis of disuse, and Paget's disease of bone with immobilization. Hypercalcemia also occurs in vitamin D intoxication, multiple myeloma, leukemia, and Hodgkin's disease. It is often only by the astute utilization of both clinical and laboratory findings that one can differentiate these disease states.

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# The Parathyroid Hormone TRP Test

KENNETH BECKER, M.D., Ph.D.

*Clinical Investigator, Endocrinology Section, Veterans Administration Hospital; Assistant Professor of Medicine, George Washington University School of Medicine*

It has been known for many years that the parathyroid hormone induces phosphaturia. Subsequent studies have demonstrated that one of the principal physiologic means by which this phosphaturia is produced is by decreasing the renal tubular reabsorption of phosphate,[1] although distal tubular secretion may also be a factor.[2] The tubular reabsorption of phosphate (TRP) is that amount of phosphate filtered by the glomerulus which is reabsorbed by the renal tubules. The filtered load of phosphate may be expressed as the product of the serum phosphate and the glomerular filtration rate.

In 1956 Chambers and co-workers[3] introduced a simple clinical procedure for the determination of the TRP which they utilized to diagnose hyperparathyroidism. The formula they used for TRP was:

$$\text{TRP (as \%)} = 100\left[1 - \frac{\text{UP} \times \text{SC}}{\text{UC} \times \text{SP}}\right]$$

where UP = urinary phosphate, UC = urinary creatinine, SC = serum creatinine, SP = serum phosphate. The TRP of normal controls was 78 to 90 per cent, and patients with hyperparathyroidism had values between 41 and 82 per cent. Unfortunately, further studies revealed 3 significant objections to the usage and interpretation of this test. First, it was noted that there was a considerable overlapping in the TRP values; some patients with hyperparathyroidism were found to have normal values, and some normal controls had low values. Reynolds et al[4] noted that 43 per cent of hyperparathyroid patients which they studied had a normal TRP. A second objection to the TRP test is the advisability of careful dietary phosphate control in order to insure an accurate and reproducible TRP. A third and perhaps most significant objection is that disease entities other than hyperparathyroidism also frequently result in a lowered TRP, such as the hypercalcemia associated with malignancy, sarcoidosis, and multiple myeloma. Other nonhypercalcemic states such as osteoporosis, myxedema, and Cushing's syndrome may have a low TRP.

It was because of these limitations that a modification of the TRP test was introduced—the parathyroid hormone TRP test.[5] The procedure involves the determination of the TRP before and after the administration of parathyroid extract. The rationale for this test is that the patient with hyperparathyroidism has an increased secretion of endogenous parathyroid hormone and that the administration of exogenous parathyroid hormone should have a smaller effect on the TRP in these patients than in patients with hypercalcemia of nonparathyroid etiology or in normal individuals. Hence, that which is of interest to the diagnostician is not the initial level of TRP, but to what extent the post-parathormone TRP differs from the initial TRP.

The parathyroid hormone TRP test involves no special preparation or dietary manipulations other than encouraging the patient to drink 3 glasses of milk daily for 3 days prior to the test in order to eliminate any gross phosphate depletion. Briefly, the patient is hospitalized for 2 days. Starting at 8:00 p.m. of day 1 an infusion of 1 liter of 5 per cent dextrose in water is administered slowly and uniformly through the night. At 8:00 a.m. of the following morning all of the nocturnal noncatheterized urine is collected and the values for urinary phosphate and creatinine are determined and serum phosphate and creatinine values are obtained. Day 2 of the test commences at 8:00 p.m. of the following evening and the procedure is exactly the same except that 200 units of parathyroid extract are added to the intravenous infusion. On the following morning the urinary and serum phosphate and creatinine are again determined and the TRP of day 1 and day 2 are calculated.

The experience to date with the parathyroid hormone TRP test has included studies upon 36 individuals. There were 16 patients with hyperparathyroidism proven at surgery. A parathyroid adenoma was found in 15 patients, and 1 patient, whose cervical exploration was negative, became normocalcemic postoperatively, presumably as a consequence of interruption of the blood supply of an adenoma. Most of these hyperparathyroid patients had a difference between the TRP of day 1 and day 2 of 6.8 per cent or less. Only 1 patient had a TRP difference greater than 10.7; this man had an extremely low initial TRP and the highest serum creatinine in the group.

In order to further test the hypothesis of a limited responsiveness of TRP to exogenous parathyroid extract in hyperparathyroidism 1 hyperparathyroid patient underwent a third TRP determination after receiving a double dosage of hormone; no further diminution in TRP occurred. Five normal patients were studied, all of whom manifested a significant depression of TRP (12.6–22.5). One of the patients with hyperparathyroidism underwent a parathyroid hormone TRP test before, and again a week after removal of a parathyroid adenoma. Preoperatively there was a 0.5 per cent day 1 to day 2 difference, and postoperatively the day 2 decrease was 18.6 per cent.

Five patients with hypercalcemia associated with malignancy were studied, all of whom could be separated from the hyperparathyroid group by the large day 2 decrease in TRP. Two patients with hypercalcemia associated with hyperthyroidism responded with a significant decrease, as did a patient with hypercalcemia and Sjögren's syndrome. One patient with hypercalcemia and a negative surgical neck exploration responded with a significant decrease, and 2 patients with borderline and transient hypercalcemia responded similarly. One patient with hypercalcemia and osteoporosis underwent a negative surgical exploration of the neck; this patient also responded as would a normal individual by a significantly reduced TRP on day 2. In addition, a normocalcemic patient with idiopathic hypercalciuria, a patient with pseudopseudohypoparathyroidism, and another with primary hypoparathyroidism also exhibited significant decreases.

In summary, among most of the patients studied the parathyroid hormone TRP test successfully separated those patients who had hyperparathyroidism from normal individuals and from those patients with hypercalcemia of other etiology. It is certain that inevitably a "gray zone" of overlapping will occur and that some individuals may respond to the test differently than expected. As in the interpretation of all biologic phenomena, arbitrary laboratory values are not absolute and do not always have a uniform meaning. Nevertheless, at present the parathyroid hormone TRP test appears to be a useful additional diagnostic tool in the evaluation of suspected hyperparathyroidism.

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## Orthopedic Aspects

PETER I. KENMORE, M.D.

*Chief, Orthopedic Section, Veterans Administration Hospital; Assistant Professor of Orthopedic Surgery, George Washington University School of Medicine*

Advanced cases of primary hyperparathyroidism, so important in the historic development of our understanding of this disease entity, are now quite rare. The devastating bone changes of "osteitis fibrosa cystica" or "von Recklinghausen's disease" are seldom seen, and these terms should probably be relegated to historic studies.[1] Nevertheless, the effect of the parathyroid hormone upon bone tissue remains important both clinically and diagnostically. Elevated serum calcium values may be noted in patients with systemic complaints such as malaise, fatigue and nausea, as well as in the group having renal calculi. The orthopedic surgeon, roentgenologist and dentist are often in a position to discover such cases and should recognize the suggestive roentgenographic and microscopic appearances.

Roentgenography may reveal a generalized osteoporosis, often involving the skull, sometimes the phalanges.[2] Scalloped subperiosteal areas of radiolucency may be seen in the phalanges. Cystic lesions of varying extent can appear in any of the bones, and it is their incidental discovery or the occurrence of a pathologic fracture which may bring such a patient to the orthopedic surgeon. Dental roentgenograms may reveal a loss of the lamina dura. Microscopically, bone biopsy of the hyperparathyroid patient reveals extensive bone resorption, including osteoclastic dissection within the trabeculae themselves and replacement of bone with fibrous tissue (figure 1). This results in the "railroad track" appearance as described by Johnson.[3] The microscopic diagnosis of a "brown tumor" should alert one to the possibility of hyperparathyroidism, and the necessary diagnostic studies should be performed.

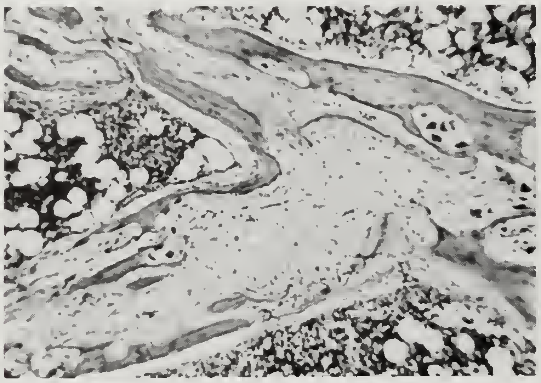

**FIG. 1. Photomicrograph of iliac crest of patient with hyperparathyroidism.**

The typical "brown tumor" is characterized by aggregated giant cells grouped around areas of old hemorrhage[2] and is diagnostic. It should not be confused with true giant-cell tumor of bone. A patient with a "brown tumor" will obviously not be helped by removal of the local lesion in the mistaken opinion that it is a true giant-cell tumor, because the underlying hyperparathyroidism persists. The jaw lesion of a giant-cell epulis may represent such a "brown tumor."

While bone lesions have been supplanted by urinary calculi as the most striking finding in clinically manifest cases of hyperparathyroidism, it must be remembered that both kidney and parathyroid gland disorders are mirrored in the bone. Although the site of primary action of parathyroid hormone has been the subject of some controversy and probably multiple sites are involved, recent work has shed interesting light on the hormone's primary action on bone. Paschall et al[4, 5] utilized an ingenious technique combining autoradiography with electron-microscopy and demonstrated changes in the role of the osteoblast within hours after administration of parathyroid hormone. The osteoblast, instead of depositing bone, acted like an osteoclast, showed enlarged, swollen mitochondria with dark granules, and resorbed both collagen and mineral matter. The osteocyte, similarly changed, resorbed the walls of its lacuna. This suggests a primary action of parathyroid hormone on bone tissue. The mechanism may involve a transformation of the characteristic action of the osteoblast and osteocyte to mimic the osteoclast.

Hyperparathyroidism continues to provide puzzles to the clinician, stimulate disagreement among the various disciplines of medicine, and afford much unexplored territory for the researcher in the future. The orthopedic surgeon should be aware of the radiographic and microscopic effects of this disease upon bone tissue and help to make the diagnosis of this disease.

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# Surgical Aspects

GEORGE A. HIGGINS, M.D.

*Chief, Surgical Service, Veterans Administration Hospital*

Once the diagnosis of primary hyperparathyroidism has been established or strongly suspected, the treatment is excision of the involved gland or glands. In most instances this is a fairly simple and straightforward problem involving removal of a single adenomatous gland which can be identified and removed with ease (figure 1). However, patients who come to operation with the presumptive diagnosis of hyperparathyroidism may present the most vexing and tedious technical challenge encountered in operative surgery, and one must always be prepared for a long and frustrating day's work when scheduling such a patient. In fact, the problem may extend well beyond a single day's work, as well illustrated by the now famous case of the sea captain at the Massachusetts General Hospital who had 7 operations before the parathyroid adenoma was finally identified in the mediastinum and removed.[1]

Difficulties encountered in the surgical treatment of hyperparathyroidism arise in general from 3 sources. The clinical diagnosis of primary hyperparathyroidism can not always be

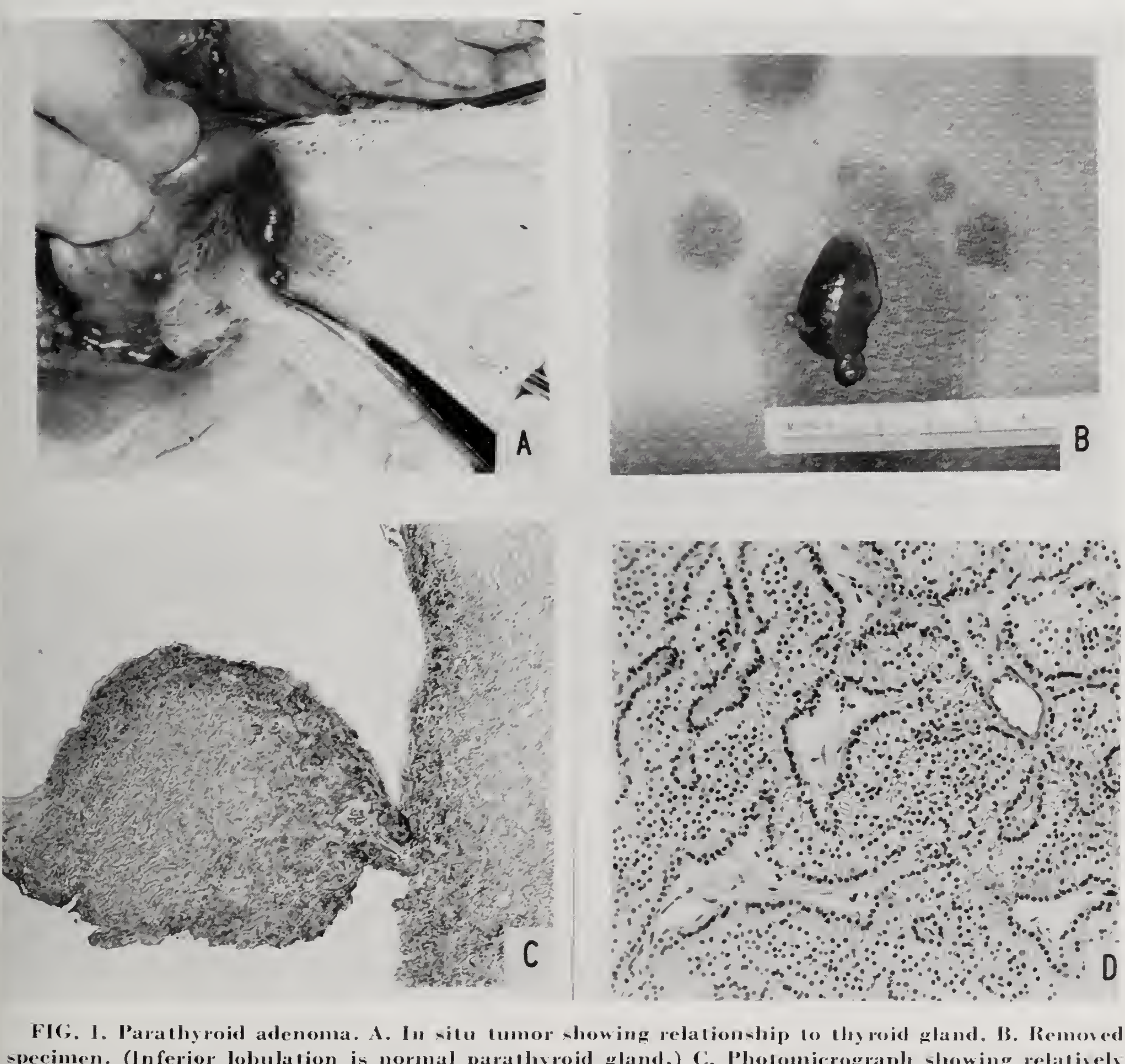


**FIG. 1. Parathyroid adenoma. A. In situ tumor showing relationship to thyroid gland. B. Removed specimen. (Inferior lobulation is normal parathyroid gland.) C. Photomicrograph showing relatively normal gland on left with adenoma at right. D. High power showing clear-cell adenoma. Other areas show more pleomorphism.**

made with certainty. The anatomy of the parathyroid glands (both in numbers and location) is not constant. Pathologic changes in the glands may be difficult to interpret both in situ and on pathologic examination.

### Diagnostic Difficulties

Despite the battery of diagnostic tests previously outlined, surgical exploration may in itself be the final and definitive maneuver necessary to establish or refute the clinical diagnosis of hyperparathyroidism. This is partially due to the extremely complex nature of the metabolism of calcium and phosphorus.[2] However, other forces producing changes in the metabolism of calcium and phosphorus, whether they involve the absorption phase, the excretory phase, or any of the complex interchanges between fluid and cellular levels, can in themselves produce compensatory changes in the parathyroid glands simulating primary hyperparathyroidism. In addition, adenomas are rarely of sufficient size to be palpable in the neck, and thus far no localizing tests have been developed. By far the most frequent clinical manifestations of hyperparathyroidism, renal calculi (often recurrent nephrocalcinosis or renal insufficiency), result from the increased excretion of calcium in the urine, and the disorders of bone previously considered to be a common clinical feature are seen in only a small percentage of cases.[3] In recent years the association of gastrointestinal symptoms, particularly those of peptic ulcer and pancreatitis, with parathyroid disease have led to the diagnosis of hyperparathyroidism in a significant number of such patients.[4] Of particular interest, also, has been the finding of multiple endocrinopathies in which adenomas of the pituitary, pancreas, parathyroids, and possibly the thyroid occur in various combinations in the same patient. Even in patients with multiple recurrent renal calculi, however, surgical exploration in the absence of convincing biochemical changes will seldom reveal a parathyroid adenoma.

### Anatomy

Pitfalls awaiting the unwary surgeon as he stalks the parathyroid in its natural habitat are numerous and varied. Not only are the normal glands extremely small and well camouflaged by their surrounding tissues but the actual number may vary. Aberrant location of the glands is frequent. Close proximity of the recurrent laryngeal nerves makes the danger of vocal cord palsy an ever-present threat, and the glands and their blood supply are so delicate that undue manipulation or biopsy may result in hypofunction, although this is usually only temporary.

The glands are usually 4 in number, the superior pair arising from the fourth branchial cleft and the inferior pair arising from the third cleft. They usually lie in close apposition to the posterior surface of the thyroid gland, often being wedged into a cleft of the thyroid or on occasion being completely within the substance of the gland. The inferior glands may be in close proximity to the thymus, a not surprising fact in view of their common embryologic origin from the third branchial cleft. Blood supply comes from the superior or inferior thyroid arteries, and close dissection of these vessels may lead to the gland if it is in an aberrant location.

Although the exact frequency of supernumerary and ectopic glands is uncertain, parathyroid tissue has been described throughout the neck and mediastinum from the base of the tongue to the pericardium. Of the fair number of adenomas found in the upper mediastinum, most can be identified and removed through the routine collar incision. It seems likely that adenomas arising in the inferior glands may well migrate into the retromanubrial space as they enlarge and are subject to movement by normal motion of the neck and respiration. Of the 43 patients recently reported from the Georgetown University Hospital and this Hospital, in no instance was it necessary to split the sternum to expose the adenoma.[5]

### Pathologic Features

The clinical picture of hyperparathyroidism most often results from a solitary adenoma, although 2 or more adenomas in the same patient are not rare. Carcinoma may also occur. In addition, primary hyperplasia of either the clear-cell or chief-cell varieties may be present. Classification of any single removed specimen based on gross and microscopic findings may be difficult. For this reason, identification of at least 4 glands is desirable even when an obviously enlarged and pathologic gland is exposed. Biopsy of all identified glands should probably be done, although care must be taken to prevent the development of postoperative tetany which may result from damage to the glands or their blood supply.

The delicate shading between hyperplasia, adenoma, and malignancy has led to the speculation that long-term hyperplasia may lead to adenomatous changes which in turn may become malignant. The histologic changes of secondary hyperplasia of the parathyroids resulting from abnormalities of the calcium-phosphorus balance, as may occur in primary renal disease, may be indistinguishable histologically from primary hyperplasia. Although uninvolved glands may become atrophic in the presence of a hyperfunctioning adenoma, this is not always the case since renal insufficiency may result in secondary hyperplasia of the normal glands. Because of these many complicating factors in parathyroid disease, close coöperation between surgeon, endocrinologist, and pathologist is essential during all phases of management of these patients.

### Acute Hyperparathyroidism

During recent years attention has been directed toward the syndrome of acute hyperparathyroidism. Wilson et al[6] reported 27 cases from the literature in addition to their 4 cases fitting into this category. Unquestionably, numerous other cases have been observed but not reported. In this syndrome patients present central nervous system symptoms leading to lethargy and coma with gastrointestinal symptoms, progressive oliguria, and, finally, cardiac abnormalities ending in circulatory arrest. The serum calcium level rises to extremely high levels and is often associated with a paradoxical rise in serum phosphorus. Apparently the acute syndrome results from a general metabolic derangement associated with the factors regulating calcium and phosphorus balance. Early operation is indicated, correction of the usual dehydration and acid-base imbalance being only preparatory to operative removal of the diseased gland or glands.

### Surgical Treatment

Since there is no available medical treatment, surgical exploration is indicated once the diagnosis of hyperparathyroidism has been made. The primary objective is removal of the diseased gland or glands in 1 operative procedure. Not only is identification of the glands, both diseased and normal indicated, but the nature of the abnormality must be diagnosed and the extent of excision determined and carried out. In order to accomplish these ends the surgeon should have a preplanned step-by-step procedure in mind. The conventional Kocher thyroid incision is made, and although we do not recommend extensive mediastinal exploration through a sternum splitting incision as a part of the primary operation, preparation for this possibility should be made. Dissection must be made in a slow and meticulous fashion, and a clean and bloodless field is essential. Mobilization of the thyroid gland is carried out, with great care taken to identify and preserve the thyroid arteries which may lead one to a parathyroid adenoma supplied by a branch of one of the thyroid arteries. In this manner the 4 glands, abnormal or normal, are identified. In most instances the adenoma will have been identified by this time and can be removed with ease.

If a gland cannot be identified in any one of the usual anatomic locations, careful examination of the tracheo-esophageal sulcus, retroesophageal space, and carotid sheath is made, keeping in mind that the vascular supply from the thyroid vessels may be the lead to identification of the parathyroid adenoma. Should this maneuver prove unrewarding, attention should be directed toward the retromanubrial space. This can be done by digital exploration and, if indicated, the fibroareolar and thymic tissue in this area can be mobilized into the field of vision. Splitting of the sternum to permit further mediastinal exploration is recommended by some as the next stage.[7] However, based upon our experience, resection of the appropriate thyroid lobe in whole or in part constitutes the next step, since intrathyroid location of a parathyroid is more frequent than is its presence in the mediastinum beyond the scope of the limited exploration possible through a neck incision. The presence of palpable nodularity of the thyroid would of course lead to this maneuver with increased optimism. In general, we reserve reëxploration, including sternum-splitting exposure of the mediastinum, only after observation of the patient's postoperative course.

The finding of primary hyperplasia makes identification of all glands essential. If 4 hyperplastic glands are found, 3 should be removed in toto, leaving behind a portion of the fourth gland approximately the size of a normal parathyroid. Care should be taken to insure adequate blood supply to the remaining portion of gland.

Postoperatively many patients develop a mild degree of tetany, which is usually transient and easy to manage. Patients should also be observed carefully for the development of pancreatitis as a postoperative complication. This is rare but may be of severe consequence. Recently the possibility of disturbance of magnesium metabolism in patients following removal of an adenoma has been described.[8] Hypomagnesemia with resultant bizarre neurologic and mental changes has been described.

*(Continued on page 566)*

# Subclinical Radiation Nephritis

## Report of a Case

**IRA N. TUBLIN, M.D.**

*Attending in Renal Disease, Veterans Administration Hospital, Washington; Clinical Instructor in Medicine, Georgetown University School of Medicine*

**ERVIN A. GOMBOS, M.D.**

*Chief, Renal Service, Veterans Administration Hospital; Associate Professor of Medicine, George Washington University School of Medicine*

RADIATION NEPHRITIS is an unusual clinical entity that follows exposure of the kidneys to ionizing radiation, usually administered for abdominal or testicular tumor. The pathologic and clinical manifestations of the fully developed disease have been well documented.[1] The fact that relatively small doses of irradiation can affect renal function has only recently been appreciated.[2]

The patient described in this report was irradiated only to an area overlying the left kidney and was studied 3½ years after irradiation.

### Report of Case

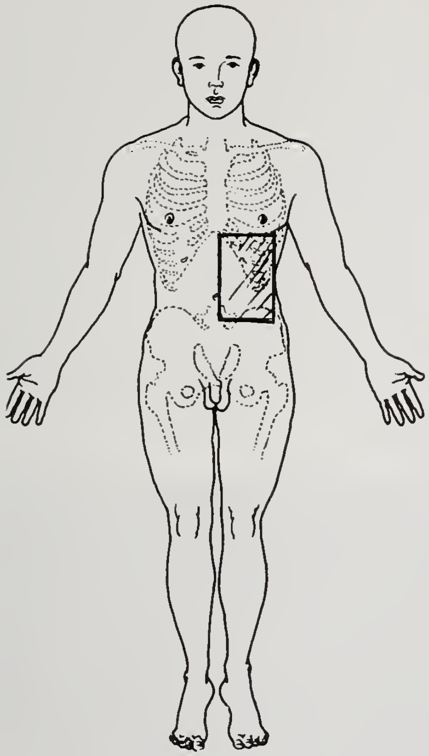
The patient, W.C., is a 32-year-old white male veteran seen for symptoms of peptic ulcer since his Army discharge in 1953. In 1958 he had gastrointestinal bleeding manifested by positive tests for occult blood in the stool, occasional melena, and rarely hematemesis. In May 1959 an elective exploratory laparotomy was performed because of X-ray findings suggestive of gastric lymphoma. Biopsy of the stomach revealed a lymphoid infiltration of the submucosa, but no bleeding site was identified. Because of the diagnosis of lymphoma the patient was irradiated over the area of the stomach. Over a period of 103 days he received an air-skin dose of 2,750 r (estimated tumor dose was 1,700 r and the estinated left kidney dose between 965 and 1,385 r) (figure 1). He was discharged on October 19, 1959.

During 1960 he was admitted several times to the V.A. Hospital, Washington, D.C. for episodes of recurrent abdominal pain. Clinical evaluation led to the diagnosis of psychophysiologic gastrointestinal reaction. Because of recurrence of the abdominal pains, however, the patient was reëvaluated in December 1962. The slides of his gastric biopsy were reviewed at the Armed Forces Institute of Pathology, and a diagnosis of pseudolymphoma was suggested. Because of persistently elevated blood urea nitrogens, plans were made to investigate his renal status.

The patient was readmitted on January 14, 1963 to the V.A. Hospital in Washington, D.C., and a review of his renal, urologic and cardiovascular systems was undertaken. Physical examination was within normal limits except for the scar from the abdominal surgery and absence of abdominal hair over the irradiated area. Fasting blood sugar, hemogram, serologic tests for syphilis, and chest X-ray films were within normal limits. A summary of his blood pressures and various clinical tests of renal function for this and prior admissions is shown in table 1. Intravenous pyelogram, radioactive ($Hg^{203}$) renal scan and $I^{131}$ hippuran renogram were within normal limits.

**TABLE 1: Pertinent Data Before and After Irradiation**

| Date | Blood Urea Nitrogen mg./100 ml. | Serum Creatinine mg./100 ml. | Specific Gravity | Urinalysis | | Blood Pressure mm. Hg |
|---|---|---|---|---|---|---|
| | | | | Protein | Sediment | |
| 2-11-1957 | 13.7 | | 1022 | Neg. | Occasional WBC | 124/70 |
| 5-12-1959 | 14.9 | | 1020 | Neg. | Occasional WBC | 118/70 |
| | | | 1013 | Neg. | | |
| 6-10-1959 | 10.2 | | 1014 | Neg. | | 110/70 |
| | | | 1015 | Neg. | 1-3 WBC | |
| IRRADIATION JULY THROUGH OCTOBER 1959 | | | | | | |
| 11-14-1959 | 27.5 | | 1024 | Neg. | 1-3 RBC | 118/70 |
| | | | 1037 | Neg. | Rare WBC | |
| 10-15-1960 | 26.2 | | | | | 122/80 |
| 11-14-1962 | 25.0 | 2.1 | 1031 | Neg. | 1-2 WBC | 130/86 |
| 11-16-1962 | 19.6 | 1.85 | 1027 | Neg. | Occasional granular cast | 120/76 |
| 12-2-1962 | 22.6 | 2.0 | 1028 | Neg. | Neg. | |
| 1-24-1963 | 25.2 | 1.8 | 1022 | Neg. | | 118/78 |
| | 18.9 | 2.1 | | | | |
| | 33.5 | 2.4 | 1028 | Neg. | | |



X-Ray Therapy

Port: Left Anterior Gastric

Size: 20 x 16 cm

KV: 250

Total Air-skin Dose: 2750 r over 103 days

Total Estimated Tumor Dose: 1700 r

Estimated Dose to Left Kidney: 965 - 1385 r

**FIG. 1. Details of X-ray therapy.**

Split renal function tests were performed on January 15. Biopsy of the left kidney was done on January 23 and of the right kidney on February 10.

### Methods and Results*

Function of the single kidneys was evaluated during moderate hydropenia. Ureteral catheterization was performed according to the method described by Hulet et al.[3] Similarly, methods for calculation of derived data as outlined by the same authors were employed. Table 2 indicates the obtained and derived data. Glomerular filtration rate ($C_{inulin}$), renal plasma flow ($C_{pah}$), and solute excretion rates were diminished in the left kidney. In addition, increased sodium reabsorption in the left kidney when compared to its mate was indicative of altered tubular mechanism for handling of that ion and water, resulting in "significant" disparity in urinary sodium concentration ($U_{Na}$) and sodium excretion fraction ($EF_{Na}$). Although the 'maximal' urinary solute concentration ($U_{osm}$) was comparable in the 2 kidneys, tubular reabsorption of water ($T^c_{H_2O}$) was lower in the left kidney when compared to its mate simultaneously or at similar solute loads. Tubular reabsorption of water was impaired in proportion to the diminished glomerular filtration rate (figure 2).

The biopsies were performed with the patient prone and with the Franklin modification of the Vim-Silverman needle. They were sectioned at 2 to 3 microns and stained with hematoxylin and

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* The following abbreviations will be used in the body of the paper, the tables and figure 2:

Urine volume or V, ml./min.

$C_{in}$ or $C_{inulin}$ indicates inulin clearance, ml./min., or GFR (glomerular filtration rate)

$C_{pah}$ indicates clearance of p-aminohippurate, ml./min., or RPF (renal plasma flow)

FF or filtration fraction indicates $C_{in}/C_{pah}$, per cent

$TM_{pah}$ indicates maximal tubular excretory capacity for PAH, mg./min.

$U_{osm}$ : urinary solute concentration, mOsm/Kg. of water

$C_{osm}$: solute clearance, ml./min.

$T^c_{H_2O}$ : tubular reabsorption of water, ml./min.

$U_{Na}$ : urinary concentration of sodium, mEq./l.

$U_{Na}V$: sodium excretion, μEq./min.

$EF_{Na}$ : excreted fraction of the filtered sodium load, per cent

$OF_{Na}$ : contribution of sodium to the total solute, per cent

$U_K$ : urinary potassium concentration, mEq./l.

$U_KV$: potassium excretion, μEq./min.

$OF_K$ : contribution of potassium to the total solute, per cent

$C_{urea}$ : urea clearance, ml./min.

$OF_{urea}$ : contribution of urea to the total solute, per cent

**TABLE 2. Functional Comparison of the Separate Kidneys**

| Function | | Right Kidney | Left Kidney | Per cent Difference |
|---|---|---|---|---|
| Urine volume* | ml./min. | 7.19 | 6.24 | 14.1 |
| $C_{in}$ | ml./min. | 51.6 | 39.2 | 31.6 |
| $C_{pah}$ | ml./min. | 255 | 202 | 23.3 |
| FF | per cent | 20.2 | 19.4 | 4.40 |
| $U_{osm}$ | mOsm./Kg $H_2O$ | 366 | 357 | 2.50 |
| $C_{osm}$* | ml./min. | 8.71 | 7.12 | 9.01 |
| $T^c_{H_2O}$* | ml./min. | 1.14 | 0.85 | 28.6 |
| $U_{Na}$ | mEq./l | 25 | 12 | 72.2 |
| $U_{Na}V$ | $\mu$Eq./min. | 180 | 74.9 | 66.8 |
| $EF_{Na}$ | per cent | 3.55 | 1.64 | 73.7 |
| $OF_{Na}$ | per cent | 12.4 | 5.61 | 74.6 |
| $U_K$ | mEq./l | 5 | 3.8 | 27.3 |
| $U_KV$ | $\mu$Eq./min. | 35.9 | 23.7 | 40.9 |
| $OF_K$ | per cent | 2.48 | 1.93 | 25.0 |
| $C_{urea}$ | ml./min. | 32.4 | 26.9 | 18.6 |
| $OF_{urea}$ | per cent | 12.8 | 12.5 | 2.38 |

The study was performed after 20 hours of hydropenia.

* Values represent averages during infusion of 10 per cent mannitol. All other listed data were obtained during basal state.

All excretion rates were corrected for body surface area.

eosin and PAS stains. The sections were read by Dr. M. J. Matthews, Chief, Laboratory Service:

The left kidney revealed preservation of the usual renal architecture (figures 3 and 4). The glomeruli were cellular and blood-containing. Occasional glomeruli had somewhat thickened external capsules, showed focal clumping of endothelial cells within tufts, focal edema and thickening of the basement membranes, and rare adhesions of tufts to the external capsules. The proximal convoluted tubules were lined by cells with uniform nuclei and pink granular cytoplasm. The distal and collecting tubules contained sloughed epithelial cells and rare admixed pink-staining protein precipitate. The interstitial tissues and portions of the medullary tissues appeared edematous and showed moderate fibrosis and separation of existing tubules. The small arteries and arterioles were prominent.

Thus the biopsy showed focal nonspecific glomerular and interstitial degenerative changes, compatible with radiation injury.

The right kidney revealed preservation of the usual renal cortical architecture. The glomeruli were normally cellular and showed mild edema of the periglomerular capsular structures and focal edema of the capillary basement membranes within tufts. The capillaries, for the most part, were dilated and blood-containing. The proximal and distal tubules were not remarkable. The interstitial tissues were also not remarkable. The small arteries and arterioles were prominent and appeared to have slightly thickened walls. Thus the biopsy showed mild focal nonspecific periglomerular and basement-membrane edema. Since no medullary tissue was present in this biopsy the interstitial changes noted in the biopsy of the left kidney could not be evaluated. The glomerular changes noted in the biopsy of the left kidney including increased cellularity and synechiae formation were not present in the biopsy of the right kidney.

## Discussion

It is generally agreed that radiation nephritis is the result of direct radiation of the kidney and is not due to the effect of extrarenal irradiation.

Data on the dose of radiation necessary to cause radiation nephritis are available from the work of Kunkler et al.[4] A dose of 2,300 r to both kidneys frequently results in the appearance of clinical radiation nephritis. It has become apparent that doses in the range received by our patient (965 to 1,385 r) may also have a significant and lasting effect.

In humans the most consistent early impairment in discrete renal functions is that of RPF which begins to fall with 400 r and after 2,000 to 2,400 r falls from 36 to 87 per cent of control values.[2] Despite an early initial rise in GFR the effect of irradiation on this parameter is downward and the depression of GFR is evident still

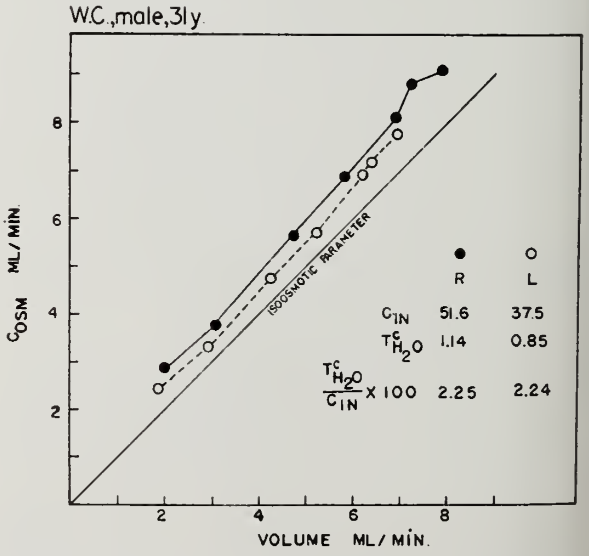

FIG. 2. Relationship of solute clearance and urine volume during infusion of 10 per cent mannitol.

after 12 months, although some recovery may be seen. Filtration fraction found is usually elevated and reflected disproportionately in diminished renal plasma flow. Maximal tubular excretory capacity for P-aminohippurate ($TM_{pah}$) seems variably affected, usually being depressed early with late recovery.[2] This is somewhat at variance with data obtained in animal studies (dogs) where, under varying experimental conditions, the most consistent observation was marked early diminution of $TM_{pah}$, out of proportion to decrements in GFR and RPF and subsequent incomplete recovery by 40 weeks after irradiation.[5, 6] It has been thus postulated that irradiation causes a specific defect in tubular transport mechanism. In dogs the maximal depression in clearances of PAH and inulin seems to occur 7 to 8 weeks after irradiation. GFR remains depressed to some degree as late as 40 weeks.[6]

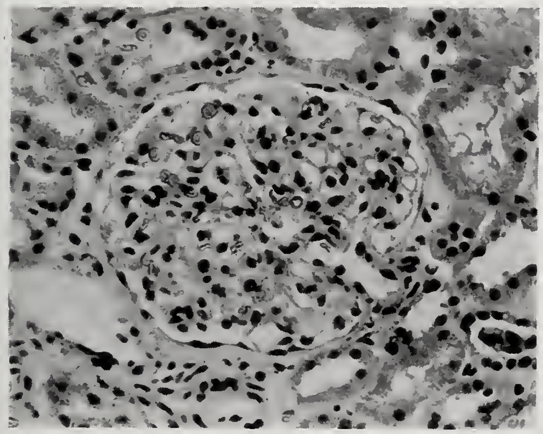

**FIG. 3. Left kidney biopsy; representative glomerulus under high dry power magnification.**

Values for GFR and RPF in our patient are most consistent with a process that has caused loss of a portion of nephron population in the left kidney (table 2). To our knowledge there are no studies reported on the concentrating mechanism in patients having received irradiation to the kidneys or experimental animals with radiation nephritis.

Routine clinical tests of renal function usually fail to reflect the degree of damage due to irradiation until the functional loss is pronounced.

Blood urea nitrogen determinations (BUN) that led to detailed investigation of our patient were obtained during a time interval when there was no evidence of gastrointestinal blood loss or increase in dietary protein load. We are at a loss to explain the elevation of BUN (and serum creatinine) in the face of an adequate GFR.

The description of the pathologic material reported in the literature on patients with radiation nephritis varies from case to case. The most consistent early finding in human material is the appearance of glomerular basement membrane thickening.[7, 8, 9] Later findings in the glomeruli are nonspecific and consist of atrophy, hyalinization, and fibrosis. A fairly consistent finding has also been deposition of fibrinoid material in the glomerular tufts.[7, 8, 10] A lipoid material has also been reported in the glomerular loops[7] or in the glomerular basement membrane.[9] The tubules have been described as atrophic[7, 8, 10] showing early necrosis and regeneration (especially the proximal tubules) with areas of hyperchromatic nuclei and mitotic figures.

The interstitial tissue has been consistently described as showing increase in fibrosis and scarring with or without edema.[7-10] Changes in the interstices are considered to be the *sine qua non* of radiation nephritis.

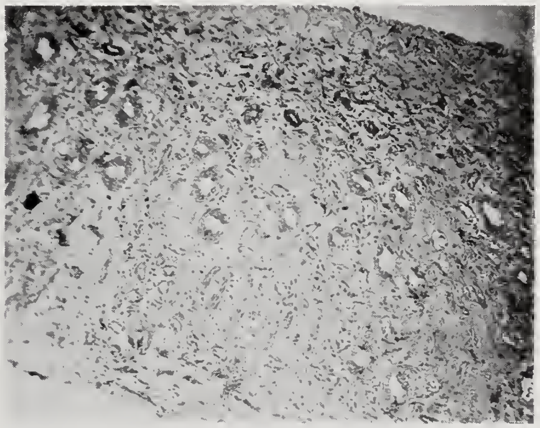

**FIG. 4. Left kidney biopsy; medulla under low-power magnification.**

The blood vessels of the kidney in radiation nephritis have received much attention. Fibrinoid material in the afferent arterioles has been a common finding. The larger intrarenal arteries have shown variable degrees of fibrinoid degeneration, intimal thickening and fibrosis and endarteritis obliterans.[8, 10]

The problem of interpretation of pathologic material is compounded by the fact that severe hypertensive disease is a common and often predominating feature of clinical radiation nephritis.

The pathologic picture of radiation nephritis is consistently present in cases of high (2,300 r) radiation dosage. Little is known of the changes found after the administration of minimal amounts of radiation in humans. The pathologist may have difficulty in diagnosing radiation nephritis in the absence of a clinical history of radiation therapy, especially if a small sample of material (percutaneous biopsy) is submitted.

The biopsy of our patient's right kidney was made in an effort to obtain a control for better evaluation of the biopsy of the left kidney. It is unfortunate that medullary tissue was not obtained from the right kidney in order to compare the degree of fibrosis found on the affected side.

In general, animal studies are in agreement with the human pathologic material and have been extensively reviewed by Redd.[11]

The clinical picture of radiation nephritis has been well described by Luxton,[1] who subdivided radiation nephritis into 4 clinical syndromes: acute, chronic, benign hypertension, and malignant hypertension.

Acute radiation nephritis has its onset after a latent period of 6 to 12 months from the time of radiation therapy. This latent period is apparently shorter in children.[9] Symptoms and signs are those of hypertension, often malignant, fluid retention, proteinuria, and abnormal urinary sediment associated with a marked degree of nitrogen retention. The prognosis is grave with a mortality of 50 per cent. The early deaths are due to the hypertensive disease, the later deaths usually to uremia. Full recovery does not occur, and those who survive the acute phase are left with decreased renal functional capacity which progresses finally into the phase of chronic radiation nephritis.

The syndrome of chronic radiation nephritis has been subdivided into secondary chronic (those who have survived the acute phase) and primary chronic radiation nephritis. The latter group presents a picture of mild hypertension, albuminuria with casts, and a minor, if any, degree of nitrogen retention. Patients of this group are asymptomatic and indistinguishable from other nephritides.

Patients with a clinical picture of benign hypertension secondary to irradiation of the kidney are usually asymptomatic.

Patients who develop the clinical picture of malignant hypertension more than 18 months after irradiation are the most interesting group. Reports have appeared of malignant hypertension occurring up to 13 years after the episode of irradiation to 1 kidney, and where cure has been accomplished by nephrectomy.[12, 13, 14] The hypertensive process that accompanies radiation nephritis is thought to be secondary to the renal lesion rather than a primary manifestation of the irradiation. In animal experiments in rats Wilson[8] has produced hypertension by irradiation of exteriorized kidneys as well as of kidneys in situ. This speaks against extrarenal effects of irradiation as the cause of hypertension. Thickening of the renal capsule due to irradiation is rarely of the degree necessary to cause hypertension by compression of the renal parenchyma. It has been postulated that the hypertension associated with radiation nephritis is due to intrarenal vascular changes, i.e., a "Goldblatt mechanism."

Our patient is at present not hypertensive, and the functional data are not diagnostic of an ischemic component but rather of a total functional nephron loss. However, the pattern of increased sodium reabsorption as seen in the left kidney of our patient is compatible with a vascular lesion as seen in some forms of renovascular hypertension. Our patient demonstrates significant disparity in urine sodium concentration in the absence of comparable ipsilateral difference in urine volume. Such a pattern has been demonstrated in some patients with segmented ischemia. This contention would have to be supported by a positive renal angiogram—not available in our patient. We plan to observe the patient reported here for possible late development of hypertension.

## Summary

A normotensive patient has been reported who has sustained a functional loss in the left kidney after abdominal X-irradiation in dosage of 2,750 r with an estimated renal dose between 965 and 1,385 r.

The functional pattern seen in the left kidney is most consistent with nephron loss, but segmental ischemia cannot be ruled out.

Bilateral kidney biopsies were consistent with radiation injury to the left kidney.

A selected portion of the literature has been reviewed.

We gratefully acknowledge the assistance of Dr. Solomon Bersack, Chief, Radiology Service, Veterans Administration Hospital, Washington, D.C. in calculating the dose of irradiation and of Dr. Mary Jean Matthews, Chief, Laboratory Services, for the interpretation of the biopsy material.

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(*Continued on page 566*)

# Diagnostic Implications of Reticuloendothelial Phagocytic Activity

**J. NEILL KENNEDY, M.D.**

*Research Fellow in Hematology, Veterans Administration Hospital, Washington*

**WILLIAM McFARLAND, M.D.**

*Chief, Hematology Research Section, Veterans Administration Hospital; Assistant Professor of Medicine, Georgetown University School of Medicine*

Investigators interested in the reticuloendothelial (RE) system have said in jest that "...the entire body is an inert matrix which exists solely for the purpose of supporting the reticuloendothelial system."[1] Although this represents an obvious exaggeration, the RE system has many functions that can prove as interesting to the clinician as to the investigator.

Any insight into the function of the RE system requires an understanding of the various terms that have been applied to the components of this system. The RE system consists of cells that have been given the general term, histiocytes. These histiocytes are sinusoidal lining cells and the neighboring reticulum cells of the lymph nodes, spleen, liver and bone marrow. The histiocytes can also be found loose throughout connective tissues such as the omentum and pleura. The connective tissue histiocyte is very similar to the blood monocyte, and therefore many feel that the monocyte is part of the RE system. The microglia of the brain and the myocyte of the heart are also considered to be histiocytes.

Metchnikoff preferred to use the term macrophage ("large eater") to describe the histiocyte. The selection of this term is appropriate because all the cells in the RE system are phagocytic toward foreign particles no matter where the cells are located. Also the RE cells have the unique ability to recall their mesenchymal ancestry and can give rise under the proper stimulation to other stem cells that are also mesenchymal in origin, such as connective tissue fibroblasts and hematopoietic tissues.

To early investigators phagocytosis was the most important function of the RE system. In recent years the importance of the RE system in antibody formation, allergy, tissue repair, storage, and foreign body reactions has been recognized.

The RE system is probably man's most important organ of defense.[2] The macrophages give immediate protection by direct phagocytosis, digestion, or destruction of foreign débris and bacteria. If necessary the RE system further facilitates the initial scavenger function of these cells by the production of specific antibodies that enhance the phagocytic activity of the macrophages.

Physiologic phagocytosis is also constantly occurring in the body.[2] The RE system clears the blood stream of senile and damaged red blood cells and conserves the iron for subsequent hemoglobin resynthesis. Bile pigments are produced by the macrophages as a by-product of this red-cell destruction. Similarly, the old white blood cells are removed by the RE system.

Elaborate studies have been fashioned to demonstrate the effectiveness and rapidity of phagocytosis of the RE system.[3, 4] By using various colloidal substances and bacteria several authors have shown the rapid removal of these substances in mice, guinea pigs and rabbits. Colloidal particles can be removed almost entirely in 1 passage through the liver. Phagocytosis of bacteria is enhanced by previous immunization against these organisms. By overburdening the RE system with foreign particles and then infusing bacteria, the phagocytic activity is markedly decreased.

Clinically the phagocytic function of the RE system can be assessed in several ways. Earlier techniques with the use of carbon, Thorotrast®, radioactive chromic phosphate, colloidal gold, colloidal silver, etc. were not entirely satisfactory, since these substances were not metabolized and

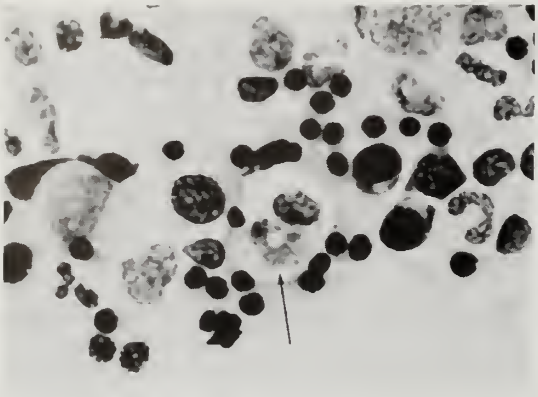

**FIG. 1. Aspirated bone marrow of patient W.C. showing a macrophage containing large granules of hemosiderin.**

remained indefinitely in the RE system. Because of this the main use of these techniques was to measure blood flow to various RE organs, especially the liver.[5] Recently the use of $I^{131}$-labeled aggregated albumin was suggested as a technique to measure the phagocytic function in the RE system.[5, 6] The $I^{131}$-tagged albumin is metabolized, and the radioactive iodine label can be measured in the blood and is eventually eliminated in the urine. The phagocytic capacity of the RE system can then be calculated with the Michaelis and Menten method of analysis.[7] In man the maximal phagocytic capacity was found to be 1.07 mg./Kg.[5] This capacity was shown to be increased in pneumococcal pneumonia, typhoid fever and pneumonic tularemia.[8] In sandfly fever the phagocytic capacity is decreased.

Simple morphologic examination of the RE system of the bone marrow also provides information concerning its phagocytic activity, and this information often proves to be of diagnostic value in selected patients. In the present study we demonstrate the status of the bone marrow RE system in (1) normal and abnormal iron storage, (2) anthracosilicosis, (3) lipoid pneumonia, and (4) Thorotrast administration.

## Normal and Abnormal Iron Storage

W.C., a 41-year-old Negro, had a history of severe alcoholism. Blood examination revealed a macrocytic anemia with a hematocrit of 27 per cent. Bone marrow examination showed macrocytic maturation with increased iron stores (figure 1). The serum folate level was 0 nanograms per ml. After treatment with folic acid the hematocrit returned to normal levels.

Approximately 15 per cent of the total body iron is stored as ferritin and hemosiderin, predominately in the cells of the RE system.[9] The estimation of this iron in the bone marrow macrophages is probably the most reliable and readily available method to determine iron stores in the normal state and in various diseases.[10] Depleted iron stores indicate iron deficiency. In iron-overload states, such as hemochromatosis, large granules of hemosiderin are packed into the macrophages. Patient W. C. presented no clinical or laboratory findings suggestive of hemochromatosis even though his iron stores were markedly increased. Increased iron stores have been a frequent finding in the alcoholic patients seen at this V. A. Hospital. The recent provocative articles by MacDonald,[11, 12, 13] questioning the long-held theory of an inborn error of iron metabolism as the etiology of hemochromatosis, seem to be supported by this finding.

## Anthracosilicosis

J.F., a 74-year-old Negro, had been a bituminous coal miner for 25 years. Symptoms included a 6-month history of weakness, anorexia, a 10-pound weight loss, and abdominal pain. Physical examination showed severe cachexia, a palpable lower abdominal mass, and an enlarged, hard prostate gland. A chest X-ray film demonstrated a fine nodular infiltrate throughout both lung fields. The hematocrit was 25 per cent. A bone marrow section obtained from the posterior iliac crest revealed dark pigment in numerous macrophages (figure 2). Similar appearing pigment was also found in a scalene node biopsy and identified as carbon. The patient's primary illness was diagnosed as carcinoma of the prostate with retroperitoneal metastases. In spite of an orchiectomy and stilbestrol the patient died several months later of the prostatic carcinoma. At postmortem examination the lungs showed massive amounts of anthracotic pigment similar to that found in the bone marrow and scalene node.

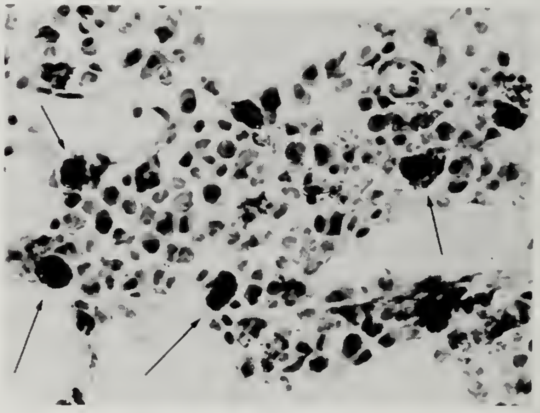

**FIG. 2. Section of bone marrow of patient J.F. demonstrating several macrophages containing carbon particles.**

This patient was initially suspected of having metastatic disease to the lung. However, after the bone marrow examination demonstrated carbon, direct questioning of the patient revealed the significant occupational history.

This unsuspected finding of carbon in the bone marrow led us to review the bone marrows of all patients diagnosed at this V. A. Hospital as having anthracosilicosis. Seven such cases were found. The marrows were examined in all cases for carbon, silicotic nodules and silica particles. Polarized light was used to search for silica particles.[14] Neither silica nor silicotic nodules could be found in the bone marrow of these patients. The marrow of 1 patient showed carbon particles in several macrophages but not to the degree found in the case presented.

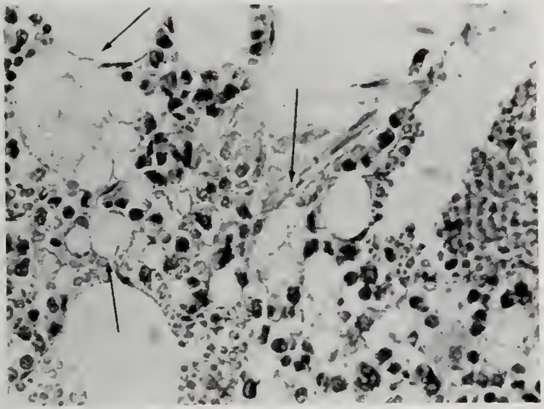

**FIG. 3. Section of bone marrow from a patient with lipoid pneumonia demonstrating macrophages laden with a lipoid material similar to that found in the lungs and regional lymph nodes.**

The presence of carbon particles in the bone marrow has been reported once in the American literature.[15] In 1927 Askanazy, a German pathologist, discussed carbon metastases to the bone marrow and speculated concerning the method of its migration to this area.[16] Nicod and Gardiol[17] described silicotic nodules in the marrow and suggested that silica acts as an irritant in the marrow producing a fibrous nodular reaction similar to that seen in the lung.

## Lipoid Pneumonia

Three cases of lipoid pneumonia were reviewed. The patients were initially evaluated for pulmonary lesions suggestive of bronchogenic carcinoma. A history of "swigging" mineral oil nightly for many years was obtained in 2 of the patients. The third had used large quantities of oil-base nose drops for several years. In 2 of the patients macrophages were found in the bone marrow containing a lipoid material similar to that found in the lungs, regional and mediastinal nodes, spleen and liver (figure 3).

Although the diagnosis of lipoid pneumonia was considered clinically in 1 of these patients, further pulmonary diagnostic procedures could not be carried out because of his age. The presence of these lipoid-laden macrophages strengthened the clinical impression.

Freiman et al[18] reported a pathologic review of 47 patients with lipoid pneumonia and did not report the presence of lipoid material in the bone marrow. However, they did find it in the regional lymph nodes and the spleen.

## Thorotrast Retention

T.A., a 57-year-old Caucasian male retired naval physician, was recently evaluated for pancytopenia which was discovered while he was convalescing from an acute myocardial infarction. In 1943 he had received 2 doses of an unknown quantity of Thorotrast in the left carotid artery for a cerebral arteriogram to evaluate a bruit below the left ear. The X-ray studies were normal. In 1950 a medical examination including a hemogram was normal.

After the patient had recuperated from his myocardial infarction a bone-marrow examination was performed. The marrow was hypocellular but showed a normal maturation. A greenish-gray material identified as thorium dioxide was observed scattered throughout the bone marrow (figure 4).

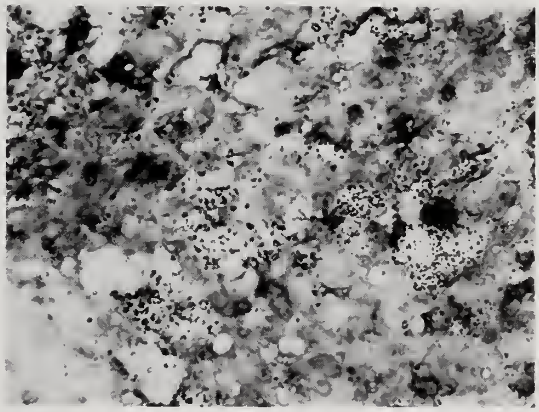

**FIG. 4. Thorotrast particles scattered throughout aspirated bone marrow of patient T.A.**

Thorotrast injected intravenously is rapidly filtered out of the blood stream by macrophages in the liver, spleen and bone marrow. This rapid phagocytosis of Thorotrast, especially in the liver and spleen, produces excellent radiologic pictures of these organs and was used to evaluate them anatomically and functionally. Unfortunately, as mentioned previously, Thorotrast is not metabolized and therefore remains indefinitely in the organ that removed it from the circulation. The long-term effects of this agent are well known.[19] Leukemia and primary malignant tumors of the liver, the lung, and the site of injection have been reported.[20, 21] There has been a case report of aplastic anemia occurring 14 years after the injection of Thorotrast.[22] The pancytopenia in patient T. A. may well be the result of the constant radiation emitted by the Thorotrast in bone marrow. Finch,[23] in a review of 1,500 unstained bone-marrow aspirates for evaluation of iron stores, reported 3 patients whose marrows contained Thorotrast. He thought that the Thorotrast was readily distinguishable from hemosiderin.

## Comment

Of the protean functions of the RE system, phagocytosis continues to be one of the most intriguing. The dynamic nature of this process and the extensiveness of the phagocytic network are vividly demonstrated by the presented cases.

Iron is absorbed in the duodenum and transported by the iron-binding protein, transferrin, to the RE system of the bone marrow where it is stored in macrophages for later hemoglobin synthesis. In the case of foreign substances, although the portal of entry may be far removed from the bone marrow, the material is often found in the RE cells of the marrow. Carbon and mineral oil were inhaled and aspirated respectively into the lung alveolae where the macrophages engulfed them. These substances were then transported in these cells or passed from 1 macrophage to another until the regional and mediastinal nodes were reached.[24] Hematogenous spread, possibly as a result of direct rupture of a lymph node into the circulation, would explain their further migration to the bone marrow, since lymphatics are not present in the marrow. The presence of Thorotrast in the bone marrow is not as spectacular as the carbon or mineral oil, since its administration intravenously provides a direct vascular communication to the marrow. These various examples suggest that, because of the unique phagocytic function of the RE system, the search for foreign pigments and other substances in the bone marrow can be particularly useful in suspected pneumoconioses, lipoid pneumonia, and Thorotrast retention.

We should like to thank Dr. Mary J. Matthews, Chief of the Pathology Department, Veterans Administration Hospital, Washington, D.C., for helpful interpretation of the histologic sections.

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# Mitral Regurgitation due to Ruptured Chordae Tendineae

## Report of Two Cases with a Note on the Diagnostic Aid of Cineangiocardiograpy

**RUBEN ALTMAN, M.D.**

*Resident in Cardiology, Veterans Administration Hospital, Washington*

**GERALD I. SHUGOLL, M.D.**

*Chief, Cardiology Service, Veterans Administration Hospital*

THE ANATOMIC TYPE of mitral regurgitation formerly of interest only to the pathologist is now important to the surgeon and, therefore, to the internist. Recent success in the surgery of mitral regurgitation and particularly in the case of repair of ruptured chordae tendineae, which usually does not require prosthetic replacement, has helped stimulate precise diagnosis and prognostication. This report will discuss 2 cases, 1 succumbing without benefit of surgery, the other improved by operation. A review of the clinical features and a note on the diagnostic value of cineangiocardiography are presented with a view toward encouraging premortem and preoperative diagnosis.

### Report of Cases

**Case 1.** A 42-year-old Negro was first admitted to the Neurology Service of this Hospital with a chief complaint of difficulty in speaking and swallowing. He had been in good health until 2 days prior to admission, when he developed an ache in his right ear without a discharge. He awoke on the day of admission unable to speak and with some difficulty in swallowing. The history included an episode of arthritis in both knees diagnosed as gonorrheal arthritis in 1947, which responded well to penicillin and aspirin, and a second episode of arthritis of his left knee which occurred in 1956 several weeks after the patient had an attack of gonorrhea. At that time the patient was found to have a prolonged PR interval in his electrocardiogram but no murmur or other signs of carditis, and the discharge diagnosis was Reiter's syndrome with myocarditis. The patient had been asymptomatic since 1956 until the present admission with exception of nervousness.

Physical examination revealed a well-developed, acutely ill Negro with an oral temperature of 102°F, a blood pressure of 120/72, and a pulse rate of 120 with regular rhythm. There was evidence of supranuclear palsy of the right 7th, 9th, 10th, and 12th cranial nerves. Marked dysarthria and dysphagia were present. There was no venous distention, and the lungs were clear to percussion and auscultation. Examination of the heart revealed a diffuse and forceful apical impulse and a faint apical systolic thrill. The second sound at the pulmonic area was slightly accentuated. The first sound at the apex was slightly accentuated. A grade IV, harsh holosystolic murmur with some musical components was heard maximally at the apex and transmitted well to the axilla and left lung base and also well down along the thoracic spine. The liver and spleen were not enlarged. The peripheral pulses were quick-rising but of normal volume and equal bilaterally. There was no edema.

The chest X-ray film showed the heart size to be upper normal and the pulmonary vascularity to be normal (figure 1). The electrocardiogram showed sinus tachycardia but was otherwise normal. The white blood cell count was 11,000 with 39 per cent neutrophiles, 18 per cent band forms, 36 per cent lymphocytes and 7 per cent monocytes. The hematocrit was 34 per cent. Urinalysis showed 15 to 20 white blood cells but no red blood cells. Three blood cultures revealed pneumococci. The spinal fluid was normal.

The patient was originally started on tetracycline, but when the blood cultures were reported the patient was transferred to the Medical Service and started on 20,000,000 units of aqueous penicillin daily by constant intravenous drip. About 11 days following admission a loud ventricular diastolic gallop (possibly a summation gallop) was heard for the first time, and the patient was digitalized. Within 36 hours of the initiation of tetracycline therapy the patient became afebrile and remained so for the duration of his hospital course. Blood cultures were persistently negative after the first week. Despite this, however, the patient maintained a persistent sinus tachycardia of about 120.

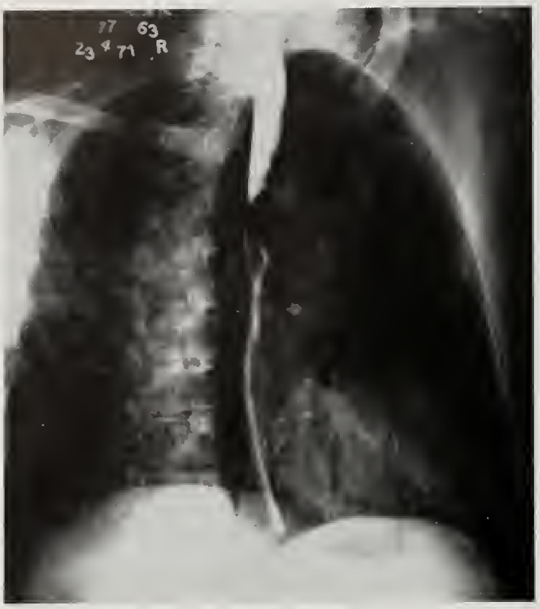

**FIG. 1. Case 1. Right anterior oblique view 1 week prior to figure 2 showing minimal, if any, left atrial enlargement.**

Following digitalization the patient was started on hydrochlorothiazide with potassium chloride, but despite this he developed progressively severe orthopnea and tachypnea. A chest X-ray film now revealed severe pulmonary venous congestion even though the heart size had not increased (figure 2). However, gradual dilatation of the heart subsequently occurred. The left atrium was only slightly enlarged fluoroscopically, although systolic expansion was present. About a month after admission a grade I–II, short, high-pitched diastolic blow was heard along the left sternal border, at which time the pulmonic valve closure sound had been noted to have increased in intensity. A right ventricular lift was also present now. The murmur was thought to be due either to functional pulmonary regurgitation secondary to pulmonary hypertension resulting from left heart failure or to infectious involvement of the aortic valve. There was no change in the patient's diastolic pressure, however. Because of the rapidly deteriorating cardiovascular state in the presence of apparent control of the infection emergency surgical correction of the mitral regurgitation with the aid of a cardiopulmonary bypass was recommended to the patient, but he refused.

The patient's heart failure progressed to the right side and this was finally stabilized with difficulty by the means of varying diuretic regimens. Thirty-six days following admission the patient was discharged, afebrile, on digitalis and diuretics to be followed as an outpatient. However, over the next month his congestive heart failure became progressively severe with increasing heart size, shortness of breath, and ankle edema. The patient was readmitted to the Hospital where, because of the transient development of a right ventricular conduction defect and right atrial enlargement on the electrocardiogram along with paroxysmal episodes of dyspnea, he was started on heparin in order to prevent possible pulmonary embolism. Thirteen days after the second hospital admission he became acutely dyspneic and died.

Necropsy showed multiple pulmonary infarctions present in both lower lobes and in the right upper lobe of the lungs. The heart weighed 570 Gm. with marked dilatation of the right ventricle predominantly, although the left ventricle and both atria were also dilated. The chordae tendineae to the posterior leaflet of the mitral valve were ruptured, but both the leaflets of the mitral valve were intact and supple with no evidence of previous disease. The aortic valve was normal.

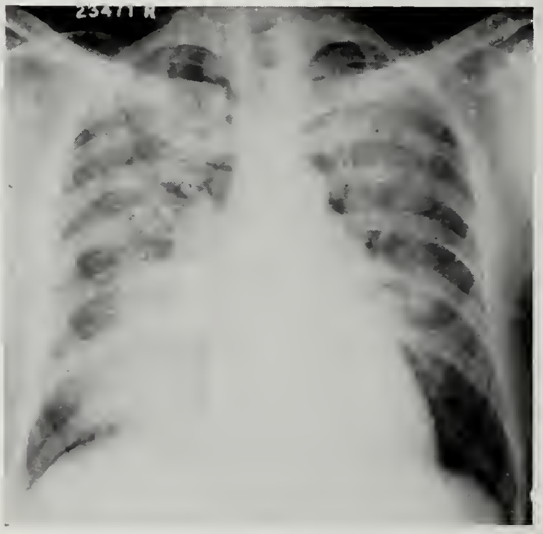

**FIG. 2. Case 1. Extreme degree of pulmonary vascular congestion and edema with only minimal enlargement of left ventricle.**

In summary, a young male, with no previous evidence of heart disease, developed acute mitral regurgitation secondary to ruptured chordae tendineae as a result of acute pneumococcal endocarditis. Despite prompt control of the infection he developed rapidly progressive congestive heart failure and died approximately 11 weeks after the onset of his illness and 6 weeks after refusing surgery.

**Case 2.** A 34-year-old white construction worker was admitted to this Hospital with a 2-week history of the rather sudden onset of exertional dyspnea, paroxysmal nocturnal dyspnea, orthopnea, and pedal edema. The history revealed that at the age of 8 years he had had migratory joint pains diagnosed as acute rheumatic fever and was treated with bed rest for 6 months. At the age of 14 he had had tender, swollen ankles but was not put to bed. When he entered the service at the age of 17 he was told of a cardiac murmur but was accepted into the service. For the several years prior to admission he was doing heavy construction work as a manual laborer without any difficulty until about 6 months prior to admission when he noticed fatigue in the morning. Two weeks prior to admission he noted, for the first time, the occurrence of exertional dyspnea while on the job, which progressed in severity along with the development of episodes of nocturnal dyspnea, orthopnea and pedal edema until the time of admission.

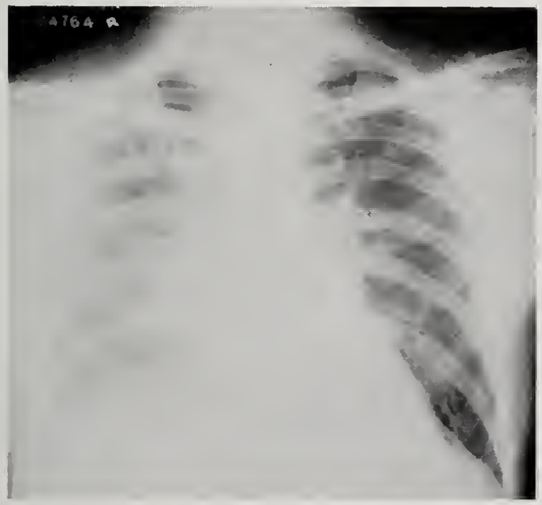

**FIG. 3. Case 2. On admission with marked pulmonary venous congestion but only slight left ventricular enlargement.**

Physical examination revealed a well-developed white male in slight respiratory distress at rest with a blood pressure of 106/60 and a regular pulse with a rate of 84. With the head elevated there was jugular venous distention, and the hepatojugular reflux was positive. The lungs were clear to auscultation and percussion. The apical impulse was forceful at the anterior axillary line, and there was a slight systolic thrill at the apex. The pulmonic closure was not accentuated. A grade IV, harsh, holosystolic murmur was heard maximally at the apex and transmitted better toward the base of the heart than toward the axilla. The murmur was also well heard over the thoracic spine. A loud ventricular diastolic gallop was present at the apex.

An electrocardiogram showed a voltage suggestive of left ventricular hypertrophy. The white blood cell count, hematocrit, and sedimentation rate were normal, and blood cultures were negative. An X-ray film showed slight left ventricular enlargement, marked pulmonary vascular congestion (figure 3), and surprisingly minimal left atrial enlargement (figure 4). Fluoroscopy showed systolic expansion of the left atrium.

The patient lost 8 pounds and became asymptomatic after treatment with digitalis and diuretics. When his cardiovascular status was stable he underwent a transseptal left-heart catheterization and left ventricular cineangiocardiography. The details are listed in table 1. The significant findings were marked elevation of left ventricular and diastolic and left atrial pressure with no gradient across the mitral valve. There was also elevation of right ventricular end diastolic and right atrial pressures. The left atrial pressure contour showed a large systolic filling wave characteristic of great mitral regurgitation. Cineangiocardiograms were taken at 30 frames per second in the right anterior oblique position following injection of sodium iothalamate 80 per cent into, first, the left ventricle, then the left atrium. The left ventricular injection demonstrated great mitral regurgitation, but of particular note was the marked excursion of the mitral valve (posterior leaflet as proven at surgery) into the left atrium during systole and its flail-like movement during some premature ventricular con-

**TABLE 1: Cardiac Catheterization Data—Patient 2**

| PREOPERATIVE | POSTOPERATIVE |
|---|---|
| Right Ventricular Pressure | Right Ventricular Pressure |
| Systolic 37 mm. Hg | 25 mm. Hg |
| End diastolic 9 mm. Hg | 1.5 mm. Hg |
| Right Atrial Pressure | |
| Mean 7 mm. Hg | 1 mm. Hg |
| Left Atrial Pressures | |
| "a" 23 mm. Hg | |
| "cv" 46.6 mm. Hg | |
| Mean 24 mm. Hg | |
| Left Ventricular Pressure | |
| Systolic 99 mm. Hg | 96 mm. Hg |
| End diastolic 24 mm. Hg | 7 mm. Hg |
| Aortic Pressure 113/62 | 105/73 |

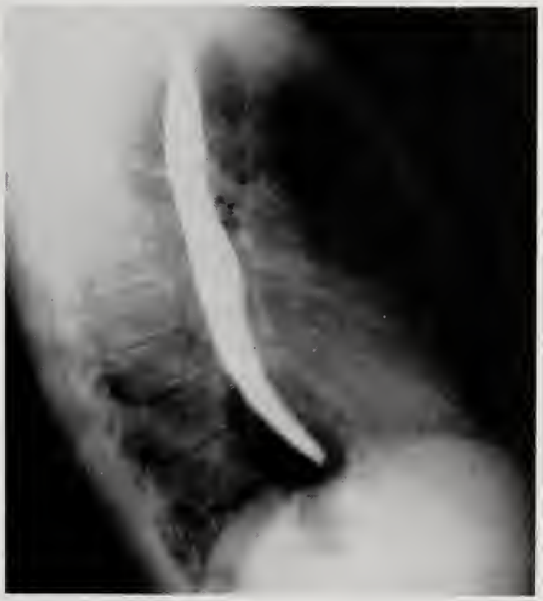

**FIG. 4. Case 2. Slight degree of left atrial enlargement demonstrated in lateral view of barium-filled esophagus.**

tractions. This suggested the possibility of ruptured chordae tendineae.

The patient was followed for 9 months as an outpatient, and despite strict medical management with digitalis, diuretics and a low-salt diet along with rest, he developed progressive symptoms, incapacitating him for work, and dilatation of the heart. Therefore, about 9 months after his first hospital admission surgery was performed with the aid of a cardiopulmonary by-pass. Severe mitral regurgitation was found with each systole. A chorda tendinea to the posterior mitral leaflet was ruptured, and this was sutured directly to the posterior papillary muscle. In addition, the widely dilated annulus was plicated at each commissure and the mitral regurgitation greatly reduced although not eliminated completely. Some thickening of the other chordae tendineae was noted, consistent with old rheumatic involvement. The patient's postoperative course was uncomplicated. A holosystolic murmur at the apex persisted but was less intense by about 2 grades. A loud ventricular filling sound could still be heard. Despite the persistence of some mitral regurgitation the patient was symptomatically greatly improved and was able to undergo moderate exertion without cardiovascular symptoms compared to his complete incapacity prior to surgery.

Three months following surgery left catheterization and cineangiocardiography were repeated. The details are again in table 1. The significant findings, however, revealed a return of the intracardiac pressures to normal. Unfortunately, during the attempt at transseptal catheterization, following the retrograde catheterization of the left ventricle, transient asystole developed which responded immediately to a few seconds of closed chest massage. The procedure was then discontinued and left atrial pressure was not obtained. Left ventricular cineangiocardiography revealed a slight to moderate amount of mitral regurgitation, but the major change as compared to the pre-operative study was the normal excursion of the mitral valve without any prolapse into the left atrium during systole. This suggested that the chordae tendineae were now intact. At the time of this writing the patient is 5 months postoperative and has had continued improvement in his exercise tolerance and a slight decrease in his heart size. He is currently seeking work.

In summary, this young man with a history of acute rheumatic fever in childhood and with a known murmur in young adulthood was able to perform manual labor without symptoms until 2 weeks prior to admission to the hospital when he developed progressive dyspnea, orthopnea, and pedal edema. His catheterization revealed severe mitral regurgitation and suggested a ruptured chorda tendinea. He developed progressive deterioration in his cardiovascular state despite medical therapy and so surgery was performed for the repair of his ruptured chorda tendinea and plication of his mitral valve annulus. This has resulted in marked symptomatic and hemodynamic improvement, although moderate mitral regurgitation remains.

## Discussion

Mitral regurgitation is not the uncommon lesion it was thought to be during the beginning of the twentieth century. Wood[1] in his series of 300 cases of mitral valve disease found that 34 per cent had some degree of mitral incompetence and that in 16 per cent of the cases this was the predominant lesion. The main etiology of mitral regurgitation is rheumatic fever; however, other etiologies must be considered. These are (1) congenital, (2) ruptured papillary muscle which has been ascribed predominantly to myocardial infarction but has also been reported in syphilis and in 1 case of periarteritis nodosa,[2] and (3) ruptured chordae tendineae.

There have been multiple etiologies reported for ruptured chordae tendineae. The most common cause is bacterial endocarditis.[3] This was the etiology in the case of our first patient, who had acute pneumococcal endocarditis on a previously normal mitral valve. Trauma to the chest, extreme physical exertion, rheumatic activity,[4] and spontaneous rupture[5] have also been reported in the literature. We can only speculate on the exact etiology for the ruptured chordae tendineae in our second patient. He had a history of recurrent rheumatic fever, but also as a laborer he underwent physical exertion. Perhaps the latter fact superimposed upon the previously diseased chordae combined to produce the rupture.

The exact incidence of ruptured chordae tendineae is difficult to determine. The Mayo Clinic reported 20 cases in approximately a 24-year period.[3] The group at the Presbyterian Hospital, Philadelphia, Pennsylvania,[6] found 4 cases of ruptured chordae tendineae in 43 consecutive cases of mitral regurgitation evaluated for surgery. Menges and associates[7] at Western Reserve University found 6 cases of ruptured chordae tendineae in an 18-month period. We found both our cases in a period of a little less than a year. It can be assumed that many of the patients with this condition were not diagnosed in the period prior to cardiac surgery.

Ruptured chordae tendineae is associated with a rapid downhill course, generally in a period of months, compared to the 5-year survival period after the onset of symptoms in the usual forms of mitral regurgitation.[1] Often the patient can time the onset of his symptoms to a specific day or, occasionally, to the exact minute, in contrast to the gradual onset of symptoms in mitral regurgitation of other etiologies.

This lesion is associated with a harsh pansystolic murmur, often with a thrill, which is of sudden onset. It is generally transmitted to the axilla, although in some cases it may be transmitted to the base of the heart. In the latter instance the murmur may simulate aortic stenosis.[8, 9] It is thought by some authors that this murmur, which is transmitted so well to the base, is due to the rupture of the chordae tendineae of the posterior leaflet causing an anteriorly-directed jet[10]; however, this relationship between anatomic and auscultatory findings has not been consistent, and several cases of anteriorly transmitted murmur were found to have lesions of the anterior mitral leaflet.[7, 9]

There is no typical electrocardiographic picture with ruptured chordae tendineae, although atrial fibrillation which is found in 30 per cent of all cases of mitral insufficiency has been reported in some of the cases.

An enlarged left atrium showing pulsation during ventricular systole on fluoroscopy was described in most of the cases in the literature[7]; however, both of our patients had only minimally enlarged left atria by chest X-ray examination with barium swallow and fluoroscopy. Our first patient was documented to be in pulmonary edema when his heart size was still normal in the chest X-ray film. It is probable that the degree of left atrial enlargement and left ventricular dilatation are functions of the duration of the lesion and are of no value in determining the etiology.[11]

Cardiac catheterization may suggest the presence of mitral regurgitation and indicate its severity but cannot provide anatomic details. Injection of contrast medium into the left ventricle along with cineradiography demonstrated in case 2 a marked excursion of the posterior leaflet of the mitral valve to the left atrium with each systole (figure 5). There was also an abnormal degree of mobility, accentuated by the premature contractions, producing a flail-like movement of the leaflet. This suggested disruption of the chordal restraining action. The diagnosis of ruptured chordae tendineae could, therefore, be suspected preoperatively. Very little has been published on cineangiocardiography in this condition Khalaf et al[12] discussed and presented diagrams of a case but commented only on the irregular and lobular enlargement of the left atrium. They quoted Gravier and associates[13] as saying that strong jets in the commissural areas and irregular atrial enlargement (presumably from the impingement of jet streams from localized valve lesions) are characteristic of chordal rupture. Ross and Criley[14] reported 3 patients with ruptured chordae tendineae studied by cineangiocardiography and presented a representative frame from one of the studies. This, in the left anterior oblique projection, showed prolapse of the posterior leaflet of the mitral valve into the left atrium. The other 2 patients presented similar findings. None of them was proven by surgery, however. Our patient in a postoperative study demonstrated normal mobility of the valve and absence of prolapse despite persistence of a moderate amount of mitral regurgitation. This tends to validate the preoperative interpretation. Thus, although many more observations are necessary to support its consistency, cineangiocardiography should provide assistance in making a preoperative diagnosis of ruptured chordae tendineae.

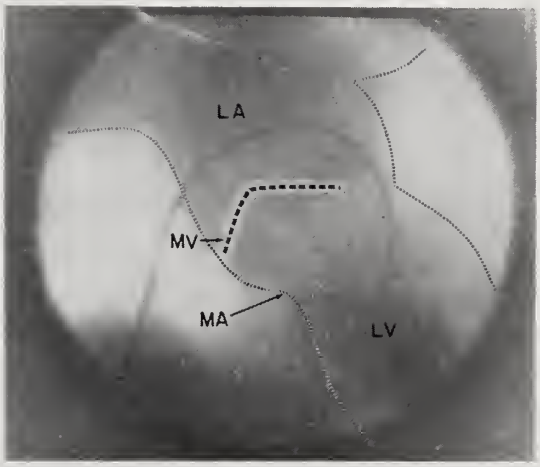

**FIG. 5. Case 2. Frame from cineangiogram, right anterior oblique view: catheter in left ventricle (LV) through the mitral valve; contrast material filling left atrium (LA); posterior leaflet of mitral valve (MV) prolapsed into the left atrium; mitral annulus (MA) at level beyond which valve leaflet should not ascend in systole.**

Mitral regurgitation is probably the last of the major valvular lesions which has become accessible to surgical repair with the advent of the Starr-Edward prosthesis. The surgical techniques used in correcting mitral regurgitation secondary to ruptured chordae tendineae are generally different from those used in correcting the usual forms of mitral regurgitation. These cases have been successfully corrected by reattaching the chordae tendineae to the papillary muscle,[15] plicating the dilated mitral ring,[16] or by a combination of both procedures[17] as was done in our case 2. The techniques are obviously simpler and safer than prosthetic replacement of the mitral valve, and the reported results have been excellent. Therefore, the preoperative diagnosis of ruptured chordae tendineae assumes greater importance. This diagnosis should be considered in the patients who have a rapid downhill course and the sudden onset of a pansystolic murmur radiating either to the axilla or base.[18] The presence of severe left heart failure in this setting, with a radiologic minimally enlarged left heart, may be a clue to the rapid onset of the lesion. The diagnosis of ruptured chordae tendineae may be confirmed by cineangiocardiography.

## Summary

Two cases of ruptured chordae tendineae have been presented, one secondary to pneumococcal endocarditis, the other to old rheumatic valvulitis[19] and severe exertion. Each patient had a harsh apical pansystolic murmur and a rapid downhill clinical course. Neither patient had the radiologically demonstrable enlarged left atrium described in the literature. The first patient refused surgery and died. The second improved clinically after surgery. The clinical features and surgical management of this lesion have been discussed and the literature reviewed. The role of cineangiocardiography as a diagnostic aid has been discussed.

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# Hepatorenal Failure Following Portacaval Shunt: Hemodynamic Considerations and the Application of Ascitic Fluid Infusion

## Report of a Case

**JAY N. COHN, M.D.**

*Clinical Investigator, Veterans Administration Hospital, Washington; Instructor in Medicine and Pharmacology, Georgetown University School of Medicine*

INTRAVENOUS INFUSION of ascitic fluid is a technique which has not gained wide acceptance although it has been recommended sporadically for many years as a treatment for resistant ascites in a cirrhotic patient.[1, 2] The possible deleterious hemodynamic effects of the raised intra-abdominal pressure associated with large collections of ascites have been recognized,[3] but paracentesis is ordinarily avoided in these patients because of the hazards of electrolyte disturbances, uremia, infection, hemorrhage, protein depletion and hepatic coma.[4]

In the case report that follows, repeated studies both before and after a portacaval shunt procedure helped to document the nature of the hemodynamic abnormality in the progressive downhill course of this patient. On 2 occasions diversion of his ascites into the vena cava in an attempt to correct the hemodynamic abnormality resulted in prompt reversal of oliguria and the symptoms of hepatic-encephalopathy.

### Report of Case

A.J., a 46-year-old Negro, was transferred to the Mt. Alto V.A. Hospital on September 17, 1963 because of hematemesis. He had consumed large quantities of wine and whiskey for many years with intakes as high as a gallon of wine or a pint of whiskey daily. He had had previous hospitalizations for hepatic coma in 1961, epistaxis in 1962, and hematemesis 3 months prior to admission, when esophageal varices were first demonstrated.

Ten days prior to admission, following a period of heavy alcoholic intake, he began to vomit copious quantities of blood. He was admitted to another hospital, where his hematocrit was 18 per cent and he was transfused with 7 units of whole blood. The bleeding stopped, and he was transferred for further care.

Physical examination revealed a well-developed, slightly obese Negro who weighed 220 lbs. and had no evidence of muscle wasting. The blood pressure was 110/70 mm. Hg, pulse 88 and regular, and the oral temperature 100.2°F. There was slight gynecomastia and a single spider angioma on the chest but no other stigmata of severe liver disease. The liver was firm and nontender with the edge palpable 5 fingerbreadths below the right costal margin. The spleen was not palpable. A small amount of ascites was present, as evidenced by slight bulging in the flanks and shifting dullness.

The hematocrit on admission was 26 per cent and the white blood cell count 5,100. The urea nitrogen (BUN) was 9 mg., the blood glucose 76 mg. fasting, the blood cholesterol 153 mg., and the total bilirubin 0.85 mg. per 100 ml. of blood. Total protein was 6.5 Gm. with an albumin of 2.9 Gm. per 100 ml. Bromsulphalein retention was 38 per cent in 45 minutes and the prothrombin time was 45 per cent of normal. Thymol turbidity, cephalin flocculation, transaminase and amylase determinations were normal. A urinalysis was normal, and a stool examination was negative for occult blood. Large esophageal varices were demonstrated roentgenographically and by esophagoscopy.

No further bleeding occurred, and administration of mercurial diuretics induced a weight loss of 15 lbs. with disappearance of the clinical signs of ascites.

The hepatic vein was catheterized on October 10. With the catheter advanced into the wedged position, pressure was 12 mm. Hg. Estimated hepatic blood flow, measured by the method of Bradley and associates[5] with a constant infusion of indocyanine green dye, gave a value of 1,700 ml. per min. However, extraction ration of the indocyanine green was only 15 per cent, suggesting extremely poor hepatocellular function and leading to the possibility of overestimation of the true hepatic blood flow. Cardiac output, measured by the dye dilution method, was 9.5 liters per min. (table 1). Blood volume was 72 ml./Kg. (normal 68 ml./Kg.).

**TABLE 1: Serial Hemodynamic Measurements**

| Date | Blood Pressure mm. Hg | Cardiac Output liters/min. | Blood Volume ml./Kg. |
|---|---|---|---|
| 10/10/63 | 110/70 | 9.5 | 72 |
| 2/13/64 | 100/65 | 4.9 | |
| 3/30/64 | 90/60 | 3.8 | 56 |
| 3/30/64* | 110/60 | 7.8 | |

* After dextran

Laparotomy was performed on November 5. The liver was nodular, and the portal vein pressure was 490 mm. $H_2O$. An end-to-side portacaval shunt was performed, and the pressure fell to 190 mm. $H_2O$.

Postoperatively the patient did well for the first 2 weeks, but then he developed increasing ascites with a low-grade fever which did not respond to antibiotic therapy. Treatment with a variety of diuretic agents including spironolactone and prednisone did not effect a satisfactory diuresis. The patient developed a distinct impairment of intellectual function and a progressive loss of muscle mass, with the appearance of shoulder-girdle wasting which was not present preoperatively.

Protein content of the ascitic fluid was repeatedly between 4 and 5.7 Gm. per 100 ml., but cultures of the blood and ascitic fluid were negative. Peritoneal biopsies showed acute and chronic nonspecific peritonitis with no evidence of granuloma. Tuberculin tests were negative, and liver biopsy showed far-advanced Laennec's cirrhosis. Esophagoscopy revealed that the varices were nearly collapsed, implying patency of the portacaval shunt.

The blood pressure ranged between 90–100/60–70 mm. Hg, and the BUN gradually rose to 43 mg. per 100 ml. Cardiac output performed on February 13, 1964 was 4.9 liters per min. (table 1). At this time the patient was lethargic and intermittently confused with a pronounced "liver flap" and massive ascites. Ascitic fluid protein had decreased to 2.7 Gm. per 100 ml.

The urine volume remained adequate until March 23, when it fell below 300 ml. per day and the BUN rose to 62 mg. per 100 ml. Studies were performed on March 30, when the patient appeared to be in a terminal state of hepatorenal failure. The arterial pressure was 90/60 mm. Hg, and the cardiac output was 3.8 liters per min. (table 1). Renal vein pressure was 19 mm. Hg, and renal blood flow, measured by the dye dilution method[6] was 372 ml. per min. in the right kidney. The blood volume had decreased to 56 ml./Kg. A rapid infusion of 500 ml. of low molecular weight dextran (Rheomacrodex*) increased arterial pressure to 110/60 mm. Hg and raised cardiac output to 7.8 liters per min. Right renal blood flow increased to 945 ml. per min.

It was thought that the impaired circulation to the kidney and probably also the liver was related both to the lowered cardiac output and to the elevated venous pressures resulting from the massive ascites. Despite the evidence of peritoneal irritation and exudative peritoneal fluid earlier in his hospital course, it was decided to reinfuse the ascitic fluid in an attempt to augment blood volume, increase cardiac output, and reduce venous pressure.

On March 31 a peritoneal cannula was inserted and peritoneal fluid was transferred by means of a continuously operating Sigmamotor pump to an intravenous fluid bottle from which it was allowed to drip into an indwelling femoral vein catheter at a rate of about 300 ml. per hour. The infusion procedure was continued until the abdomen was soft and approximately 5 liters of ascitic fluid had been reinfused. The patient tolerated the procedure well with no fever or signs of pulmonary congestion. The urine output increased to 2,950 ml. the first day and remained at about 1,000 ml. per day for the next 2 weeks. The BUN fell to 12 mg. per 100 ml. Periodic infusions of dextran and blood were given to maintain blood volume.

On April 10 the patient developed a fever up to 102°F, and a chest X-ray film revealed an infiltration in the right lower lung field. Cultures of the blood and ascitic fluid were negative. Following treatment with penicillin the temperature returned to normal. The patient then remained well for about 1 week, but the ascitic fluid began reaccumulating. As his abdomen became tense he became increasingly confused and disoriented until May 11, when he was noted to be comatose and again oliguric.

The infusion of ascitic fluid was reinstituted, and over the next 24 hours approximately 6 liters of ascitic fluid was drained from his peritoneal cavity and infused intravenously. As the abdominal pressure relaxed, the patient became alert and oriented with loss of the "liver flap" which had been present for several weeks. The urine output again increased markedly.

He did well until May 21, when he developed a fever and began vomiting. He became progressively weaker and died on May 23, 6½ months after his portacaval shunt.

Postmortem examination revealed a small liver weighing 1,300 Gm. with a smooth surface. Large bands of fibrous tissue and irregular nodules were visible on the cut surface. The portacaval shunt was patent as were the hepatic veins. The kidneys were not remarkable. Microscopic examination revealed a chronic nonspecific inflammatory reaction involving the peritoneum and the serosal surfaces of the liver and other viscera. The liver showed severe changes consistent with postnecrotic cirrhosis but with no evidence of acute necrosis.

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* Supplied by Pharmacia Laboratories, Inc., Piscataway, New Jersey.

## Discussion

Progressive liver failure following end-to-side portacaval shunt is unusual.[7] Although hepatic blood flow may be decreased following the procedure,[8] no further impairment of functional capacity usually occurs. Although the postoperative deterioration and massive ascites in the patient reported here could be related in part to a chronic low-grade peritonitis, it is attractive to postulate that circulatory changes were an important contributing factor.

The unusually high gradient of 24 mm. Hg between the portal vein and the wedged hepatic vein (sinusoidal) pressures in this patient indicated the presence of a significant elevation of presinusoidal resistance as well as the increased postsinusoidal resistance usually found in cirrhosis.[8] Preoperatively an injection of T1824 was made into the ascending aorta while hepatic vein blood was drawn through a Gilford cuvette densitometer. The dye curve recorded showed an early peak representing hepatic arterial inflow and a high, delayed plateau consistent with portal venous inflow.[9] Thus, despite the severe intrahepatic obstruction to portal flow in this patient, the portal venous system was contributing a significant proportion of the hepatic blood flow.

The ability of the cirrhotic liver to tolerate total diversion of its portal blood supply by a shunt procedure often is attributed to the possibility that portal inflow was already negligible or that hepatic arterial inflow can increase to meet the tissue's requirements. In this patient, the persistence of significant portal flow might indicate that the hepatic artery could not adequately increase its contribution to hepatic flow, perhaps because of involvement in the same scarring process which produced an increase in presinusoidal resistance.

Diversion of the portal flow by the end-to-side anastomosis in this patient may have produced a critical impairment of hepatic circulation. Progressive hepatocellular failure may have ensued and led to the appearance of resistant ascites. In addition, extension of the scarring process in the liver could have led to a further rise in postsinusoidal resistance. In the absence of a patent portal vein, which may decompress the sinusoids in this situation by carrying retrograde flow,[10] sinusoidal hypertension would be further increased and ascites formation enhanced.

The high resting cardiac output noted in this patient at the time of the first study is consistent with previous observations of an increased cardiac output in cirrhosis.[11] It is likely that the subsequent decrease in cardiac output, which may have been a factor in critically impairing regional blood flow, was related to changes in blood volume. Circulating blood volume often is depleted in an ascitic patient, both because of the effect of rapid intraperitoneal transudation on plasma volume and because of the increased capillary hydrostatic pressure which is present in the lower portion of the body as a result of increased pressure in the inferior vena cava. The role of blood-volume depletion in the progressive fall in cardiac output and organ blood flow in this patient was documented by the striking increase in cardiac output and renal blood flow induced by an infusion of dextran.

Hepatic and renal blood flows were further compromised by the mechanical effects of the ascitic fluid, which increased venous pressure in these organs to 19 mm. Hg. With a mean arterial pressure of 70 mm. Hg, the pressure gradient across these vascular beds was only 41 mm. Hg.

The importance of the above factors in precipitating the hepatorenal failure was demonstrated by the dramatic response on 2 occasions to ascitic fluid drainage (lowering the inferior vena cava pressure) and intravenous reinfusion (increasing effective blood volume, raising cardiac filling pressure, and increasing cardiac output). The reversal of oliguria, azotemia and hepatic encephalopathy is strong evidence that hepatic and renal blood flows were increased.

The availability of repeated hemodynamic studies in this patient made it possible to associate the clinical deterioration with hemodynamic abnormalities. Although many aspects of this case were unusual, the response to treatment directed at correcting the abnormal circulatory state points out the importance of considering these hemodynamic factors in managing a patient with progressive hepatic and renal failure.

## Summary

Repeated studies in a patient who developed hepatocellular failure following a portacaval shunt indicated that hemodynamic abnormalities

(*Continued on page 594*)

# Type A Asian Influenzal Pericarditis*

## Report of a Case

**ROBERT C. MACON, M.D.**†

*Formerly Resident in Pulmonary Disease, Veterans Administration Hospital, Washington*

**GLEN W. MILLER, B.S.**

*Virology Research Laboratory, Veterans Administration Hospital*

**SOL KATZ, M.D., F.A.C.P.**

*Chief, Medical Service, Veterans Administration Hospital; Associate Professor of Medicine, Georgetown University School of Medicine*

THE ASSOCIATION of influenza virus with cardiovascular disease is known,[1,2,3] but it has been stressed that it is unusual. Sixteen cases of pericarditis or myopericarditis associated with influenza virus have been reported. Of these, 13 were reported by Adams.[2] His series includes 5 cases associated with type B Asian influenza virus, 3 cases associated with both A and B types, and 5 cases associated with A type only. Both cases reported by Silber[1] were associated with type B. The case described by Hildebrandt et al[4] was not stipulated as to type. Therefore, to our knowledge there have been 5 cases reported of pericarditis associated only with type A Asian influenza virus.

### Report of Case

A 57-year-old Negro was admitted to the Hospital for the first time with a chief complaint of malaise of 7 days' duration. Shortly after the onset of initial symptoms he developed anorexia, nonproductive cough, and sharp left anterior chest pain.

Pulmonary tuberculosis had been treated 4 years before at the Oteen Veterans Administration Hospital. He had been well since his release from that hospital. He had never received immunization for influenza.

The patient was a thin but well-developed man in no distress. His temperature was 98.0°F, the pulse rate 96, the respiratory rate 28, and the blood pressure 120/70. The ocular fundi were negative for tubercles. The pharynx showed no injection. There were no palpable lymph nodes. The chest was symmetrical with normal respiratory motion. The lungs were clear. The heart had sinus rhythm with frequent premature contractions. A pericardial friction rub was heard with components in systole and diastole. There were no abdominal masses and no peripheral edema. No paradoxical pulse could be detected.

The urine on admission gave a 2+ test for albumin, and the sediment showed occasional granular casts. Subsequent urinalyses were normal. The blood urea nitrogen was 40 mg. per cent on admission and later fell to 17 mg. The white blood cell count and differential on admission and subsequently were within normal range.

Cold agglutinins and L.E. preps were negative. Routine sputum grew pneumococcus. Several 24-hour sputa were negative for acid-fast bacilli on smear and culture. Sputum for fungi revealed *C. albicans*. Serum obtained 17 days after admission was positive at 1:256 dilution for Asian influenza virus group A, and 15 days later the titer was also positive at 1:256 dilution. A serum drawn 4 months after the initial one was positive at 1:64 dilution. Electrocardiograms taken on admission and throughout the hospital course showed frequent premature atrial and ventricular contractions. A chest X-ray film on admission (figure 1) showed an enlarged cardiac silhouette compatible with cardiac enlargement or pericardial effusion. Subsequent films showed progressive decrease in the size of the cardiac silhouette to normal on the last film obtained 31 days after admission (figure 2).

The patient was treated symptomatically, and his symptoms subsided. The pericardial friction rub was heard for about 2 weeks.

### Comments

Although a clinical diagnosis of viral pericarditis is often made, actual proof of the etiology on the basis of specific viral or antibody identification has not been frequent. With wider availability of virus diagnostic methods a larger number of the cases of acute idiopathic benign pericarditis will undoubtedly prove to be viral.

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* From the Medical Service, Veterans Administration Hospital, Washington, D.C., and the Department of Medicine, Georgetown University School of Medicine.

† Now engaged in the private practice of internal medicine at 809 Viers Mill Road, Rockville, Maryland.

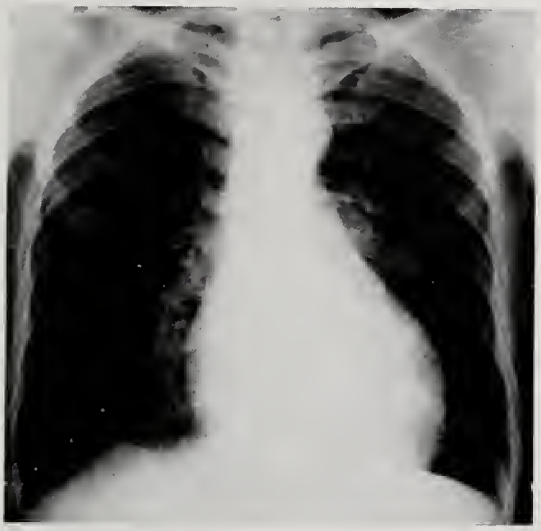

**FIG. 1. Admission film showing large size of cardiac silhouette.**

Of the established reports of viral pericarditis, those associated with Coxsackie viruses, especially type B, have been foremost. These have occurred in both epidemic and sporadic forms of this disease. In addition, strong presumptive diagnoses of pericarditis have been made in other viral diseases such as lymphogranuloma venereum, poliomyelitis, measles, chickenpox, smallpox and mumps.

The presence of a high serologic titer for Asian influenza virus in a case of pericarditis is only presumptive evidence that the pericarditis is due to the influenza virus itself. In the case reported here the initial serologic specimen was drawn 17 days after hospitalization and no subsequent increase in titer was seen. However, the patient was questioned carefully and he had had no respiratory illness within 6 months prior to the present illness. This, coupled with the decrease in titer later in the absence of previous influenza vaccination, and the occurrence of his illness during an epidemic of influenza (winter of 1963) make influenzal pericarditis the presumptive diagnosis.

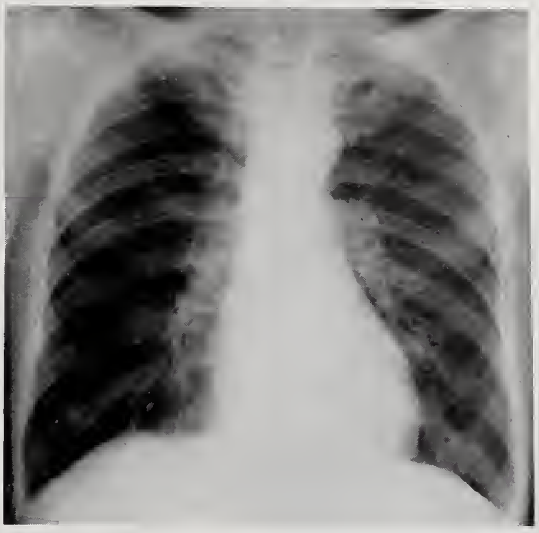

**FIG. 2. Final film 31 days later showing cardiac silhouette of normal size.**

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## Clinical Center Study of Ewing's Sarcoma

The coöperation of physicians is requested in a continuing study of Ewing's sarcoma by the Radiation Branch of the National Cancer Institute at the Clinical Center, National Institutes of Health, Bethesda, Md.

Referrals of patients with a radiographic diagnosis of Ewing's sarcoma are needed. It is desired that such patients be referred prior to establishment of the diagnosis by biopsy in order that they may be admitted for biopsy and immediate institution of therapy.

Physicians interested in having their patients considered for the study may write or telephone Dr. Ralph E. Johnson, Clinical Center, Room 6-B-09, National Institutes of Health, Bethesda, Md. 20014; telephone: 656-4000, ext. 65147.

# PRESIDENT'S PAGE

## MEDICAL CARE FOR THE AGED

It has always been a firm belief of mine that a medical society should have intense interest in community health problems and exert all its influence in finding the best solution to those problems.

It should be a matter of great pride for all our members to know that the Executive Board is considering a plan to provide for adequate help for those senior members of our community who need medical care. It is thoughtfully conceived after months of work by our Committee on Aging.

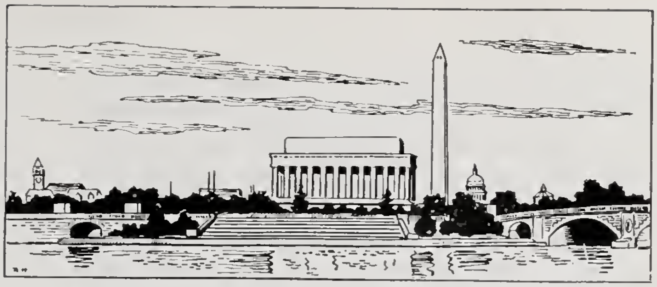
This is not a skin-and-bones plan, providing only very limited benefits as proposed by the Administration in the Medicare Program, under Social Security, for rich and poor alike, regardless of ability to pay. It is a broad coverage plan embodying benefits for hospital and nursing care, surgical and medical care, drugs, and diagnostic services. It does not put a narrow limit on available resources, but it is geared to take care of medical costs for any aged person when these costs exceed his ability to pay.

It envisages continuity of care by his own physician, who knows him as a patient and as a person with dignity. It gives him a chance to obtain Blue Cross-Blue Shield coverage similar to our excellent Senior Citizen Contract already in operation. Several states have adopted this Blue Cross-Blue Shield approach, using Kerr-Mills funds to pay premiums, and it is interesting to note that this concept is working exceptionally well in the State of Texas, a fact which has not been noted publicly by the White House.

It is a plan for full implementation of the Kerr-Mills Law in the District of Columbia, as was intended by Congress, to help those patients of yours and mine who are not indigent and who should not be required to seek medical aid under an indigent program. This is for the medically indigent, temporarily or permanently. It is not for the totally indigent. These latter are already cared for by another Federal plan—the Old Age Assistance Law.

You will by this time certainly have been called upon to answer questions inspired by the radio, TV, and newspaper advertisements of the American Medical Association to acquaint the public with the fact that Kerr-Mills can be superior to Medicare under Social Security in any state of the Union that so desires. Our own plan, if publicized in our newspapers, will inspire a multitude of questions from your patients for you to answer. It is incumbent upon every one of us to be able to answer these questions, and to answer them intelligently. I ask you, therefore, to read and study the plan carefully when it is announced in the Annals. It is a positive program for health care in this community.

Edward W. Nicklas



# EDITORIALS

## On Letters to the Editor

Exchange of ideas between physicians is declining. We read scientific articles, but we seldom discuss them. We attend staff meetings and discuss the local issues presented. But there is little serious intercourse outside these restricted channels.

No longer do the Medical Society meetings attract many members. No longer are there debates concerning nonscientific aspects of medicine, or even about scientific problems, for that matter. Too often the "discussions" following case reports are planned. Too often they are nothing but reviews of current literature. Too seldom is there a sincere challenge with active debate.

Thus the small groups that plan the programs can guide our professional thinking. Even smaller cliques can direct Medical Society actions.

I do not propose to discuss all the reasons for our decaying understanding of each other or for our decreasing willingness to discuss new ideas before accepting them. I suggest that each Society member voice his opinions on any subject. He will help guide the Executive Board by doing so. He can do it with Letters to the Editor.

Every letter will be read carefully, and each opinion will be reported to the Executive Board. As many letters as possible will be published. If several discuss the same point, only one may be printed. A note will indicate that it is representative of the rest.

We are not sheep, following but not thinking. We are simply very busy men. A letter takes little time, though, especially for the writer with strong opinions. Please write that letter. The Society will be grateful for your ideas.*

R. R. Montgomery, M.D.

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* Editor's note: In addition to the topics discussed in editorials the Editorial Board would like your opinion concerning: ethics of owning packaging houses; the court's role in ordering treatment; whether it is proper for a hospital to assume total care for private patients.

## The Committee on Armed Forces and Veterans Affairs*

The Committee on Armed Forces began functioning as a standby committee to keep track of Government and Armed Forces matters of concern to doctors.

Our most active time since World War II, when the Committee was formed, was during the Korean Conflict and prior to it, when we were able to support and encourage a fair Doctors' Draft Law. It has been our opinion that there should be specific legislation to indicate priorities, and that the Medical Societies should have something to say in the formulation of this type of legislation. We believe that the selection of doctors should not be completely and entirely up to the Government or the Armed Forces.

Upon the suggestion of our President, Dr. Edward W. Nicklas, this Committee was expanded to include "Veterans Affairs" this year. It seems pertinent to understand more about the veterans' medical affairs. Construction is nearly completed on the new, 750-bed VA Hospital on the grounds of the Washington Hospital Center. Many ques-

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* This editorial was submitted by the Chairman of this Committee in response to a request from the President of the Medical Scoiety that he describe its functions and activities for readers of the Annals.

*Opinions expressed in contributions to the Editorial Section are those of the writers and do not necessarily reflect the views of the Medical Society of the District of Columbia*

tions have been raised by Committee members and others as to type of patients to be admitted to this facility; what percentage would be service-connected, and would those patients with non-service-connected disabilities be screened carefully to determine whether or not they can pay for private medical care or private hospitalization.

The question was also raised as to whether private hospitals could be included in the post-graduate program for VA interns and residents as well as hospitals affiliated with medical schools.

It is our plan as a Committee to meet with the Medical Director of the Veterans Administration to seek an explanation of these and other questions which members may submit. Please let me know of any further suggestions or questions.

William T. Spence, M.D.
*Chairman, Committee on Armed Forces and Veterans Affairs*

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# Report on Trauma*†

## Transportation of the Severely Injured Patient

Before a severely injured individual is brought to a place where definitive therapy can be undertaken, he is usually in a totally helpless state. The most common urgent problems to be contended with during this phase are: (1) the maintenance of an adequate airway; (2) the control of hemorrhage; (3) the stabilization of fractures. Of these, the most critical and consistently demanding is the maintenance of an adequate airway—important not only in the transportation of the victim from the scene of the accident, but under any circumstance where the patient is unable to change his position.

During the early period of his care, usually a time of excitement, obvious injuries such as gross hemorrhage and deformed extremities are recognized for the most part and receive at least adequate temporary care prior to and during transportation. It is during this phase that the patient is most likely to aspirate quantities of secretions, blood, and débris while attention is directed to a grotesquely positioned extremity. As will be consistently referred to in this series of articles, the worst thing that can happen to any injury, regardless of its location, is the superimposition of an inadequate airway.

While the surest way of maintaining an airway is by the use of a tracheotomy, this is often not feasible and does itself require care. The simple expedient of placing and maintaining the unresponsive patient on his side, with an airway in place and with the head in a slightly dependent position so that secretions and blood will drain out of the mouth (as shown in figure 1), will in most instances insure an adequate airway. Not shown in the diagram are appropriate straps for added stability. Sand bags, pillows, and/or blankets will contribute to the maintenance of this position. Ambulance stretchers, while narrower than that shown in the diagram, are nevertheless adequate to allow such positioning.

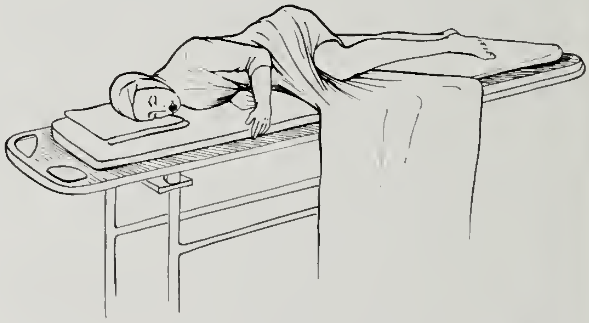

FIG. 1. Position of patient to insure adequate airway.

Other supportive measures, such as nasal oxygen, blood, or fluids, can easily be administered to such a patient.

A good deal of the responsibility for managing an injured patient in the early phase of his care rests with ambulance drivers and attendants. The physicians of the state, however, have an even greater responsibility in attending to the following details:

Through your County Medical Society insist:

1. That your community ambulance drivers and attendants receive at least a basic first-aid course. These courses are being given regularly by your American Red Cross Chapter.
2. That your community ambulances be equipped to:

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* This is the second of a series of papers concerning Trauma submitted by the North Carolina Chapter of the American College of Surgeons Committee on Trauma. The first appeared in the May issue of the Medical Annals.

† Reprinted by permission from N. Carolina Med. J., vol. 24, no. 3, March 1963. Request for permission was made at the suggestion of Dr. Milton C. Cobey, Chairman, Committee on Trauma, Section III, American College of Surgeons.

a. Maintain an adequate airway
b. Control hemorrhage
c. Splint fractures
d. Dress wounds
e. Render oxygen
f. Remove secretions from the oral cavity by suction.

3. That your community ambulances adhere to all rules and regulations concerning normal traffic control.

You can help your community ambulances by:

1. Releasing their stretchers as soon as practical from your emergency room.

2. Being available for emergency room care as soon as possible.

3. Showing appreciation for any improvement made by your ambulance attendants.

4. Participating in the education of ambulance attendants concerning the transportation of the severely injured patient.

## Tie It Tight, or Else—

Dr. Allen S. Cross, Medical Officer at the Washington Post Office, invited your Assistant Editor to inspect, prior to auction sale, the kind of merchandise which accumulates in its third floor Sales Room about every 6 weeks.

Mr. Brainard Bellfield, Sales Assistant assigned to the dead parcel unit, explained that this unique assortment, which runs the gamut of usefulness, is made up of unclaimed items, the contents of badly addressed and wrapped packages, articles refused, and those on which claims have been paid. Mr. Bellfield sorts many like items into bins and you buy the lot. Larger pieces, such as electrical appliances, are sold individually. Would-be buyers can view the merchandise the day prior to the sale.

To give an idea of the amount of goods which accumulates, the catalog for October 14 listed 435 items, but many of these listings were "lots," or bins, of hats, books, clothing, toys, silverware, machine and tool parts. There was even a bin of medical supplies, which included an illuminated X-ray viewing box.

The display, open to anyone who cares either to look or to buy, furnishes a good object lesson, especially at this season, on what can happen to that collapsible doll buggy for Little Susie or that golf bag for Uncle Harry when too little thought is given to transportation hazards. So here's a reminder to use plenty of paper, padding and cord, and a label inside and out, when you wrap packages the next few weeks. Otherwise, those lovely gifts will be still in the Post Office 6 weeks later when the auctioneer begins, "How much am I bid?"

A.L.E.

## Influenza Vaccination Recommended for "High-risk" Groups

Recommendations calling for vaccination against influenza, especially among people in "high-risk" groups, have been approved by the Public Health Service, U. S. Department of Health, Education, and Welfare. The recommendations came from the Surgeon General's Advisory Committee on Immunization Practice, which advises the Surgeon General on recommended public health practice involving specific preventive agents, including inactivated and "live" vaccines and antitoxins.

Influenza vaccine has been shown in repeated control trials to confer substantial protection (60 to 80 per cent) against the epidemic disease, the Committee reported. The incorporation of recent $A_2$ and B isolates in the 1963–64 vaccine and the increase in their concentration during 1964–65 should result in a vaccine capable of conferring substantial protection in 1964–65. The Committee pointed out, however, that as yet there has been no opportunity to evaluate the newly constituted vaccine under conditions of a natural challenge.

The Committee foresees no major influenza outbreak in the United States this year. However, since there is always a possibility of local outbreaks, the Committee recommends that "vaccination should begin as soon as practicable after September 1 and, ideally, should be completed by mid-December." Since there is normally a 2-week delay in the development of antibodies, "it is important that immunization be carried out before influenza occurs in the immediate area."

The Committee recommended that immunization should be considered and generally recommended for persons in groups who experience high mortality from epidemic influenza. Such groups include:

"A. Persons at all ages who suffer from chronic debilitating disease, e.g., chronic cardiovascular, pulmonary, renal or metabolic disorders; in particular:

1. Patients with rheumatic heart disease, especially those with mitral stenosis (abnormal narrowing of one of the heart valves).

2. Patients with other cardiovascular disorders such as arteriosclerotic heart disease and hypertension, especially those with evidence of frank or incipient cardiac insufficiency.

3. Patients with chronic bronchopulmonary disease, for example, chronic asthma, bronchitis, bronchiectasis (degeneration and inflammation of the bronchial tubes), pulmonary fibrosis (scarring), pulmonary emphysema, and pulmonary tuberculosis.

4. Patients with diabetes mellitus (the common form) and Addison's disease (caused by malfunction of the adrenal glands).

B. Persons in older age groups. During 3 successive recent epidemics a moderate increase in mortality has been demonstrated among persons over 45 years and a marked increase among those over 65 years of age.

C. Pregnant women. It is to be noted that some increased mortality was observed among pregnant women during the 1957–58 influenza $A_2$ epidemic both in this country and abroad. It has not, however, been demonstrated in subsequent years."

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# Health Dept. Notes

### Construction Begins at D. C. General

A COMPREHENSIVE construction program to renovate much of D. C. General Hospital is now underway. The program will cost $13 million and is due for completion in March, 1968.

It is designated the "D. C. General Hospital Consolidation." Although it will add about 80 beds to the Hospital's present 1,430, the actual purpose of the program is to improve total hospital operation and to modernize patient care and service.

There will be expansion and renovation of facilities in surgery, medicine, X-ray, pharmacy, obstetrics, emergency, laboratory and other direct inpatient and outpatient services. There will also be improved facilities for food service, laundry, central supply, and other operational activities. The road system and parking on Hospital grounds will be enlarged and improved, as will heating, electrical and other utilities.

Exterior physical construction will include a 7-story connection between the 3 principal existing buildings: Medical, Surgical, and Medical Annex. In effect this will create a large single building, to consolidate in one location most of the Hospital's major patient services. There will be no reduction of Hospital service during construction, although temporary relocation may be required at times for certain services.

Six small buildings, no longer in use and obsolete, were razed as part of the site preparation. They included a wooden frame superintendent's cottage and a 3-story brick doctors' residence, the pair more than 100 years old.

This renovation of D. C. General Hospital has been planned for several years. Actual construction had been delayed until details of building and financing could be resolved. Last year the Congress appropriated $11.8 million for the project, to which the District was authorized to add $1.3 million to meet the lowest bid.

This much needed building program is especially welcomed by the Department of Public Health and by the 3 schools of medicine whose medical faculties, students and staff utilize D. C. General as a major teaching facility. Many practicing physicians in the Washington area will recall the range of their own intern, residency and other experience at the Hospital. The renovation will permit the Hospital to continue in this tradition of patient care, teaching and research.

MURRAY GRANT, M.D., D.P.H.
*D. C. Director of Public Health*

# What Every Physician Should Know*

THEODORE WIPRUD

*Special Assistant to the Executive Vice President, Medical Service of the District of Columbia*

I HAVE OFTEN BEEN DISTURBED by the lack of interest shown by doctors in the social and economic problems of medicine. I do not wish to suggest that no progress has been made, for there are certainly more physicians today well informed on this subject than ever before. But proportionately they are small in number, and among them are many who accept what they are told without doing any reading on the subject or thinking for themselves. I should add here that it is my belief that more of the physicians in the District of Columbia are better informed than in most other communities.

As one who has been associated with physicians most of his life I can readily understand why the situation I have described exists. The story is only too familiar to you. In medical school the student's sole objective is to get his medical degree. There follow the years of internship and residency. Upon entering private practice the young physician encounters a struggle to build up a clientele. Once he is established he is very much occupied with his patients and keeping abreast of developments in his field. As if this were not enough, there are innumerable medical meetings he is required to attend, notably those of hospital medical staffs. I deeply sympathize with the doctor when he says to me, as many of them have, "I just don't have time to read up on economic problems of medicine, nor am I much interested. I just want to be left alone to practice as I see fit."

Unfortunately, there are powerful forces at work which make this attitude unwise. If some of the objectives now being sought are realized, there will be changes in the delivery of medical care which will have pronounced and not always a beneficial effect on how every doctor practices his profession. The doctor should therefore devote at least a little of his valuable time, difficult though this may be, to informing himself about the social and economic problems facing his profession. Only in this way can he express his views intelligently and effectively. Obviously, not all the proposed changes in the delivery of medical care originating outside the medical profession are bad. However, the doctor has no way of judging this unless he is in the possession of facts. Clichés and slogans which have been handed down in the ranks of the medical profession for years will not do.

Let me give you an example. The term "socialized medicine" has been a red flag to the profession for a long time. What it means to most physicians is a Government system of medical care for the general population. Actually, according to a definition by Webster, socialized medicine is "administration by an organized group, a state, or a nation of medical and hospital services to suit the needs of all members of a class or classes or all members of the population, deriving funds from assessments, philanthropy, taxation, or other sources." It is clear, then, that included in this definition there are many other methods of providing medical care aside from that furnished by the Federal Government.

Doctors should know that the public will not listen to their views on an emotional basis alone. They must be specific and know what they are talking about. Some of their presentations over the radio, TV, and before legislative bodies have been embarrassing. Which reminds me of an incident that happened several years ago. A high-ranking officer of the AMA was appearing before a Congressional committee in opposition to a compulsory health insurance bill. After the good doctor had read a statement prepared for him, Senator Pepper of Florida, Chairman of the Committee, inquired, "Doctor, have you read this bill?" Reluctantly he admitted he hadn't but insisted it was a socialized medicine bill.

Having delivered myself of these views, which, incidentally, I and others have done for so many years, I doubt very much if physicians generally will ever become much interested in the socioeconomic problems of medicine. They will, as they have in the past, rely to a large extent upon their medical leaders for guidance except where they are directly affected financially. Whenever fees for their services are up for consideration interest is easily aroused and not infrequently controversy ensues.

At the present time there is health legislation before Congress which has far-reaching implications for the medical profession. The so-called King-Anderson Bill is just one. Although this bill would primarily provide hospitalization for the aging, physicians employed by hospitals, or who have entered into contracts with these institutions, are very much involved. The AMA, as you well know, opposes this legislation because it would, in its opinion, be the first step toward a Government system of medical care. There are other medical care bills now before the Congress with which doctors should be familiar. Although none of them, it appears, will be seriously considered this year, they are far from dead. Leaders in the medical profession know only too well that they cannot be safely ignored.

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* Presented at the Quarterly Symposium sponsored by the Providence Hospital Medical Alumni Association in Washington, D. C., May 14, 1964.

In evaluating this legislation the profession should be realistic, because, as I have said before, change is not necessarily good nor bad. One thing is certain—the *status quo* cannot be maintained in the climate which exists in this country today. Social and economic changes are in the making, not only in medicine but in every other field.

Medical organizations have often appealed to doctors' prejudices rather than to reason. For example, the AMA in opposing medical care legislation has, in years past, insisted that its constituent and component medical societies and their members adhere to what I call the "party line." For a number of years any state or county medical society whose officials expressed views contrary to those of the AMA was looked upon with suspicion. I am glad to say that the Medical Society of D. C. was among the independents. Its position has been that, if the convictions of its members were so weak they could not withstand listening to or reading about views contrary to their beliefs, the medical profession was indeed in a sad state. I should add that in recent years the AMA has been more tolerant of those in its ranks who hold views contrary to those officially approved.

A progressive organization, the District of Columbia Medical Society was in the vanguard of the medical societies in this country which urged upon the AMA the need for a national health program. In the resolution which its delegates introduced in the House of Delegates in 1945 it was recommended that the Association's Board of Trustees be instructed to "proceed as rapidly as possible with the development of a specific national health program with emphasis on a Nation-wide organization of locally administered prepayment medical plans sponsored by medical societies." The resolution was adopted. As a result the AMA shortly thereafter created the Associated Medical Care Plans, Inc., which later became Blue Shield. The Society's delegates were naturally elated.

When increases in the costs of medical care come under discussion some physicians assume that this has reference only to their fees and they are immediately on the defensive. As a matter of fact, the term includes all expenditures by the patient in connection with his illness—physician's charges, hospitalization, nursing, drugs, and so on. Since the mid-1940's the combined costs of these services and facilities have risen to a point where the development of medical prepayment plans became inevitable.

Example: Between 1946 and 1962 hospital daily service charges had risen 251 per cent, or over 4½ times the cost of other consumer items. Medical care, on the other hand, and this includes not only physicians' services but drugs and so on, rose 88 per cent in this period. A semi-private room which cost on the average $7.13 in 1946 was $24.25 in 1962.

Nationwide, the compensation of employees, including wages paid individuals in all walks of life, salaries, and supplements to wages and salaries, increased during the period 1946 to 1962 by 174.3 per cent.

The fantastic growth of prepayment plans is evidence of the widespread public demand for this method of easing the costs of illness.

In 1945 the District of Columbia Medical Society developed a prepayment plan which is known to all of you as Medical Service of D. C. It began operation in 1948 with 826 Participating Physicians. Enrollment at the end of the first year was 111,867. Income levels established at that time were $2,500 for the individual and $4,500 for a family, which was the median income of the people in the District of Columbia at that time. Those who earned below these incomes were entitled to full service benefits; that is, doctors agreed to accept payments received from Medical Service for this group as payment in full. Medical Service of D. C. grew rapidly in the years which followed, and in 1963 over 930,000 persons were enrolled and there were 2,600 Participating Physicians. Income levels had risen to $4,000 for the individual and $6,000 for the family. Benefits since then have been gradually broadened. A new program with additional benefits became effective on November 1, 1963.

Incidentally, the Medical Service's Board of Trustees consists of 20 members. Eighteen are entitled to vote. Eleven of these are physicians representing medical societies in the area.

There are still physicians who have not fully accepted the need for our Blue Shield Plan and who are not in accord with broadening its coverage and increasing those of the area's population entitled to full service benefits. I would be less than honest if I did not tell you that, in my opinion, physicians who hold this view are either uninformed or not facing reality.

To begin with, prepaid medical care is here to stay. There has never been an instance, here or in any country in the world, that this type of health program, whether voluntary or compulsory, has ever been abandoned. The question then is in what manner should it be perpetuated in this country, by such plans as Blue Shield and other voluntary programs, or by the Federal or State Governments? The answer to me is obvious. I believe in the voluntary system. It can do the job. Perhaps some time in the future it may need assistance in doing it.

The doctor could do no better, in my judgment, than to support his Blue Shield Plan, because it is the only plan that I know of in which he has a voice.

Another fact which should be obvious is that no Blue Shield Plan can remain static. To meet the needs and demands of subscribers, expansion and change will be constant, both in the interest of subscribers and Participating Physicians. Each must be protected if a satisfactory relationship is to exist.

What it comes down to then is that medical statesmanship is needed more than ever. It is to be hoped that where Medical Service of D. C. is concerned the choice of its leaders will be as wise in the future as it has been in the past; furthermore, that the support given Medical Service by Participating Physicians in the 15 years of its existence will continue to be encouraging.

It is to be regretted that more of them do not turn out for the Annual Meeting of Participating Physicians. One can only deduce from this that the majority have no complaint and are satisfied.

Something should be said at this point about Medical Service's close relationship with Group Hospitalization. Aside from the fact that GHI is its administrative agent, both are indispensable to each other, for between them they pay the costs of the most essential services in the care of the sick. I am happy to say that a most congenial working relationship exists between the two.

Before concluding I should like to tell you what I think would be one good method of making physicians more conscious and better informed in regard to medical problems of a social and economic nature. This might well begin in the medical schools. I know that curriculums in these schools are very tight, but somehow it should be made possible for senior students, at least, to gain an insight into the broader economic and social problems which they will have to face when they enter practice. The interest stimulated at that time would, in my view, not be wasted. For you who are in practice I can only urge that you read the material on these subjects which is sent you by Medical Service and that which appears in the medical journals you receive. Although the hour is late, there is still time.

## Report on Gas Chromatography Seminar

Chemists have for years been seeking a "nose" that would be superior in reliability and sensitivity to human and subhuman noses. A seminar, sponsored by The Wilkins Instrument and Research, Inc., of Union, New Jersey, and attended breathlessly by (conservatively) 400 engineers and chemists and 1 physician, provided an opportunity for representatives from industry and research laboratories to evaluate progress in the area of the synthetic nose.

A quick check after receiving an announcement of the seminar led me to believe that there would be no or few representatives of the medical profession, even in research, at least from the D. C. area. To one interested in the vagaries of environmental health the announced topics suggested that they were all of potential clinical significance.

The seminar was held on July 10 in Watchung, New Jersey. The program, scheduled from 9:00 a.m. until 4:45 p.m., was punctuated by lunch and 2 coffee breaks. The formal presentations were well controlled and informative. The breaks were sometimes explosive and explanatory; the participants were an intense group. The speakers were people of accepted stature in the community (chemical) and people technically qualified to present information regarding the equipment that was under discussion: Dr. Stephen Dal Nogare, Dr. Leonard Mattick, Mr. Ernest J. Bonelli, Dr. Granville Q. Lipcomp, Dr. Stephen S. Chang, Dr. Keene P. Dimick, Mr. Bernard Mitzner, and Mr. Hal Hartmann.

Chemical compounds can be separated by passing the mixture through a column or tube (like a cigarette) that is sufficiently long and contains appropriate filtering material to cause a separation of the elements so that as they come to the analyzer for identification they are separated into sufficiently pure form that they can be identified. In gas chromatography the materials to be separated need to be in a gaseous phase. The procedure is reminiscent of paper chromatographic and agar gel diffusion methods of separation of chemicals.

It is necessary to identify the materials so separated. The electron-capture detectors are of 2 types. The parallel plate type, in which 2 electrically conductive plates are caused to have a current or charge which, when electrons pass between there is an alteration of the charge that can be measured with a galvanometer, and the co-axial chamber in which the gases pass into the center of a chamber about 0.5 cm. in length and diameter and into a charged field, where their effect on the charge is reflected again by the galvanometer. The differences between the 2 methods in efficiency, maintenance, etc., are mostly technical at this time.

It can be seen that identifying the substances would be the most critical aspect of this procedure. This process is in routine use by several segments of the chemical industry, especially the microchemical industry which deals with pollution of gases. Although it is new and many changes are being tested and refinements are being applied, it is sufficiently standardized to be used as a dependable analytical tool. As one would suspect, it has limitations; it requires concentrations to be of sufficient dilution that the detecting apparatus is not overpowered and rendered incapable of showing change.

The GC does perform a useful service in analyzing for traces of chemicals in foods, atmosphere, and elsewhere. Some early work has been begun to study trace-chemical structure of foods which in some instances seem to be valid for identification.

In summary, gas chromatography is reliable and available at the present time, although it will doubtless undergo improvements. Its usefulness is restricted to gaseous phase mixtures in which one is interested in separating and identifying substances in small concentrations. The results of these analyses are reported in units which are not in common use and should be reported here for information:

Nanograms—$1 \times 10^{-9}$ Gamma Grams
Picograms—$1 \times 10^{-12}$ Gm.

Incidental intelligence gleaned at the meeting included: Physicians' noses have not been replaced. The organoleptic detection of toxic chemicals and hazardous odors is still vital in environmental health. Lactating mothers' tissues contain more residual captured DDT than that of cows. Question: Should mothers nurse?

FDA is using gas chromatography in analyzing milk, foods, etc. for pesticide and other chemical residues. Dr. Lipcomp spoke on this subject and attempted to allay anxiety by explaining the FDA and Government standards. He pointed out, appropriately, that as analytic methods improved, old standards required revision or reinterpretation. He stated that the presence of any chemical considered carcinogenic was considered hazardous. When your representative asked him how or who decided what was carcinogenic, or, for an example of such a drug or chemical, he (Dr. L.) referred to a vague Board in Washington that advised and set the standard and passed it along to the FDA. This reference to the "hidden standard" was received with laughter by the audience.

One of the most interesting of the presentations was given by a representative of the perfume industry. He detailed their work in separating and identifying the elements of perfumes and scents. His most significant contribution was to show that despite the importance and sensitivity of the GC and ECC they still needed to check their work with the nose of the Master Perfumers who routinely differentiate and identify over 4,000 odors in the course of their work. It was gratifying to find that the human nose has not been replaced; indeed, far from it.

It is a sobering thought to consider the importance of maintaining the integrity of the "built-in chemical analyzer" (nose) and the hazards of life when it is inactivated by illness, injury, or design (chemical warfare?). It suggests that people who are interested in significant environmental changes should pay attention to people with sensitive noses. Hypersensitivity needs to be considered a blessing and not a curse. It needs to be carefully controlled so that it may function as it was intended, not just be a source of symptoms that are unwanted and disabling. This is just as true of the manifestations of the hypersensitivity state of any other organ as it is of the nose.

It is hoped that the members of the Society will feel encouraged to consider the importance of their personal role in the current considerations of what constitutes a hazardous or safe environment. I think it unreasonable for an injured pedestrian to plead that he was too preoccupied to look out for trucks and steamrollers as he crossed a busy street. Practicing physicians must assume the leadership role because it is they who are seeing the premonitory signs in their hypersensitive patients.

CLIFTON R. BROOKS, M.D.
*Chairman, Committee on Rehabilitation and Chronic Illness*

# Medicolegal Abstracts

This monthly column will be devoted to helping to keep physicians abreast of current medicolegal problems. I shall present abstracts of recent court decisions related to medicine. Comments will be brief.

* * *

Two decisions were based upon the statute of limitations. One malpractice suit was barred because it was commenced after the expiration of the statute (in Kentucky, where the statute runs for 1 year in malpractice cases).

Another was brought in Federal Court against the Government. It too was dismissed because it was commenced after the expiration of the limitations period. The Federal Tort Claims Act establishes a 2-year statute of limitations. It begins to run at the termination of continuous treatment by the involved doctor or hospital. This latter requirement formed the basis for the court's decision.

Comment: Every practicing physician should learn the Federal and state laws regarding this statute in each jurisdiction in which he practices.

* * *

Two treatments were ordered by courts, both in the case of adults. One was a transfusion refused by the patient on religious grounds (Cook County, Illinois). Her petition to have the order vacated and declared void was denied.

In the other, a court ordered amputation of a leg in a 78-year-old patient. She declared that she would rather die than lose her leg. It was amputated, nevertheless. She died 36 hours later.

Comment: The ethics and morality involved in such cases are under study by a committee of the Medical Society of the District of Columbia. Some action may be proposed at the Annual Meeting of the Society.

* * *

In Louisiana a chiropractor brought a $500,000 libel suit against the Louisiana State Medical Society. He based the suit upon the unfavorable words used in a pamphlet distributed by that Society. It pointed out the "... Facts and Fallacies of Chiropractic." The suit was dismissed because the adverse comments were not directed toward that particular chiropractor.

Comment: Though this suit was dismissed, there is an unmistakable warning—physicians should be very cautious in denigrating the actions or beliefs of any member of the nonmedical healing arts.

* * *

Four cases involved the physician-patient privilege. In the first, a damage suit was brought by a patient against another person. The trial court judge ordered the patient's physician to give a pretrial deposition to the attorneys for the defendant. The Supreme Court of North Carolina ruled that the judge did not have that authority. Only in unusual situations may the patient-physician privilege be breached.

In the District of Columbia a nurse was separated from her employment, arrested, and hospitalized. She was said to be suffering from schizophrenic reaction, paranoid type. Before the date set for the hearing on the commitment petition she was found well enough to be discharged. The court denied her the right to bring action against the psychologist who made the original affidavit because that affidavit is absolutely privileged. Such affidavits are necessary in the District of Columbia to start any lunacy proceeding.

Comment: Possibly this procedure, as well as the patient's astoundingly rapid recovery, will be of interest to the Section on Psychiatry.

In Michigan, a Federal trial court ruled that commencing a personal injury suit does not waive the physician-patient privilege. It is waived only when the patient calls his attending physicians as witnesses. When he does, the waiver extends not only to those he calls but to all other physicians who may have treated him for the injury, disease, or condition at issue.

A New York court ruled that the prosecution of a claim for death benefits under the Workmen's Compensation Act does waive the physician-patient privilege.

Comment: These conflicting situations suggest that a physician faced with a question concerning the physician-patient privilege is wise to call for legal help.

R. R. Montgomery, M.D.

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**Tainter, M.L. and Buchanan, O.H., Ann. N.Y. Acad. Sc. 54:438, 1954*

## Prenatal Care in Washington, D. C.

At the request of the D. C. Medical Society I attended a meeting of the Washington Urban League, May 1, 1964, at which there was a panel discussion devoted to the subject of "Prenatal Care in Washington, D. C."

The first 2 speakers, Dr. Murray Grant of the D. C. Health Department and Dr. Madeline Morcy of the Children's Bureau, quoted statistics of increase in maternal and perinatal mortality recently, and similar figures to show that the District of Columbia lags behind other major cities in effecting improvement in these categories over the past decade. They appeared to be asking for support of a proposal to be made to the Commissioners that the establishment of Prenatal Clinics should be 'in the public interest,' i.e., that income levels should no longer be considered in determining eligibility for attendance at these clinics. They had figures to show that perinatal mortality and morbidity are less among women who have attended such clinics, and they have reason to believe that investigations as to ability to pay, the forms to be filled out, the long waits, etc. are deterrents to clientele in the low-income group. Dr. Grant outlined plans to increase the number of prenatal clinics, for improvements at the D. C. General Hospital, and measures which he hopes will attract the low-income patients and the great number of school girls who are illegitimately pregnant. Dr. Morcy listed various measures to be considered by Congress which will subsidize state programs for child care, for prenatal clinics, and corollary services.

The third panelist, Dr. Charles Willie, of the Washington Youth for Action, spoke on "Problems and Attitudes of Low-income People That Block the Use of Prenatal Care Services." This speaker gave me and most of the audience an impression of practical knowledge and common sense. He pointed out that at income levels above $3,000 per annum maternal and perinatal mortality rates do not vary with income, but below that level they do. This indicates that poverty is basic to the problem, and he suggested 3 questions: 1. Are people who need it unaware of its availability? 2. Are people who need it afraid to use it? (owe a bill, afraid to complete forms) 3. Do they know they are eligible? In his experience, word of mouth is the only effective way of getting the information to these patients.

Dr. Reginald Lourie spoke on the prevention of mental retardation, opening his remarks with the statement that by far the greatest amount of mental retardation is not perinatal in origin but due to environmental and cultural deprivations during the first few years of life.

This cannot be detected much before 3 years of age, and in point of practical fact usually does not come to light until the child goes to school and creates a problem there. The point he had to make to this panel was that prevention starts at the prenatal clinic for the pregnant woman who needs and will accept help. A rapport may be established there which would enable social workers to follow the child through infancy and the first few years of life.

There was no discussion from the floor. It was not inferred at any time that the proposals were debatable, or that there might be alternatives. The group to which the panel was presented is strongly in favor of any proposals which might improve the situation and probably is not inclined to be critical of the recommendations put forth by the Public Health authorities.

Philip P. Steptoe, M.D.
*President, Washington*
*Gynecological Society*

## Newborn-O-Grams*

Infants born with little or no vernix have higher bacterial colony counts on skin culture than infants with average to large amounts of vernix[1]. . . . Rupture of membranes for longer than 24 hours correlates with increased incidence of neonatal illness; a history of amnionitis probably is as good an indicator of neonatal infection as any other parameter[2]. . . . Neonatal gastric obstruction is uncommon: complete obstruction is due to mucosal diaphragm, gastric atresia or pyloric aplasia; incomplete obstruction is due to cysts, ulcers, hypertrophic pyloric stenosis, incomplete mucosal diaphragm and internal herniation[3]. . . .

Small premature infants (below 1,700 Gm.) may have a physiologic thrombocytopenia; 13 such premature infants demonstrated falling platelet count during the first week of life reaching a mean value of 35,000 platelets at 17 days of life. Some prematures had platelet counts as low as 10,000[4]. . . . In the fetal malnutrition

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* From the Committee on Newborns, American Academy of Pediatrics, D. C. Chapter.

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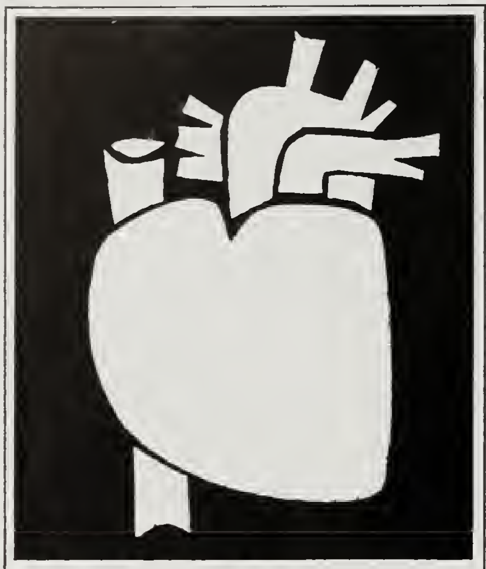

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**IN ANGINA PECTORIS AND CORONARY INSUFFICIENCY**

Provides long-term coronary vasodilation[1-11, 16]
Plus long-term control of anxiety in heart disease[12-16]

**REFERENCES:** **1.** Collicelli, A., and Nardelli, A.: Treatment of angina pectoris with a combination of pentaerythritol tetranitrate and meprobamate. Policlinico (Prat.) **67**:441, Mar. 28, 1960. **2.** Marche, J.: Pentaerythritol tetranitrate (pentrite or pentanitrine)—a coronary vasodilator with prolonged action. J. Med. Chir. Prat. (In French) **121**:252, Nov. 1950. **3.** Plotz, M.: Pentaerythritol tetranitrate: A new drug for the treatment of coronary insufficiency. N. Y. J. Med. **52**:2012, Aug. 15, 1952. **4.** Plotz, M.: The treatment of angina pectoris with a new prolonged action pentaerythritol tetranitrate. Amer. J. Med. Sci. **239**:194, Feb. 1960. **5.** Russek, H. I., Urback, K. F., Doerner, A. A. and Zohman, B. L.: Choice of a coronary vasodilator drug in clinical practice. JAMA **153**:207, Sept. 19, 1953. **6.** Russek, H. I., Zohman, B. L. and Dorset, V. J.: Objective evaluation of coronary vasodilator drugs. Amer. J. Med. Sci. **229**:46, Jan. 1955. **7.** Russek, H. I., Zohman, B. L., Drumm, A. E., Weingarten, W. and Dorset, V. J.: Long-acting coronary vasodilator drugs: Metamine, Paveril, Nitroglyn, and Peritrate. Circulation **12**:169, Aug. 1955. **8.** Russek, H. I.: Evaluation of drugs used in the treatment of angina pectoris by means of exercise-electrocardiographic tests. Ann. N. Y. Acad. Sci. **64**:533, Nov. 16, 1956. **9.** Talley, R. W., Beard, O. W., and Doherty, J. E.: Use of pentaerythritol tetranitrate (Peritrate) in treatment of angina pectoris. Amer. Heart J. **44**:866, Dec. 1952. **10.** Winsor, T. and Humphreys, P.: Influence of pentaerythritol tetranitrate (Peritrate) on acute and chronic coronary insufficiency. Angiol. **3**:1, Feb. 1952. **11.** Eskwith, I. S.: Holistic approach in the management of angina pectoris. Postgrad. Med. **27**:203, Feb. 1960. **12.** Friedlander, H. S.: The role of ataraxics in cardiology. J. Cardiol. **1**:395, Mar. 1958. **13.** Russek, H. I.: Meprobamate in the treatment of angina pectoris. Amer. J. Cardiol. **3**:547, Apr. 1959. **14.** Shapiro, S: Observations on the use of meprobamate in cardiovascular disorders. Angiol. **8**:504, Dec. 1957. **15.** Waldman, S. and Pelner, L.: Modification of the anxiety state associated with myocardial infarction by meprobamate: preliminary notes. N. Y. J. Med. **58**:1285, Apr. 15, 1958. **16.** Koehnke, F. K.: Treatment of angina pectoris of functional origin with Corneural. Med. Klin. **54**:1435, Aug. 1959.

**Indications:** 'Miltrate' is useful for prophylaxis of pain in angina pectoris and coronary insufficiency, especially where anxiety is a factor. **Contraindications:** Like all nitrates, pentaerythritol tetranitrate should be avoided or prescribed cautiously for patients with glaucoma. Previous allergic or idiosyncratic reactions to meprobamate contraindicate subsequent use. **Precautions:** *Meprobamate* —Patients engaged in activities requiring alertness should be warned of drowsiness. Meprobamate may increase the effects of excessive alcohol, and the possibility of dependence should be considered, particularly in patients with a history of drug or alcohol addiction. Sudden withdrawal may result in reactions, rarely epileptiform seizures. Grand mal attacks may be precipitated in persons susceptible to both grand and petit mal. Prescribe cautiously and in small quantities to patients with suicidal tendencies. **Side effects:** *Pentaerythritol tetranitrate* —The most common side effects are transient headache, nausea, and rash. Weakness, palpitation, flushing, gastrointestinal distress, and lightheadedness have been reported on a few occasions. *Meprobamate* —May cause drowsiness and, rarely, ataxia, usually controlled by decreasing the dosage. Allergic or idiosyncratic reactions are rare, generally developing after one to four doses of the drug. Mild reactions include urticarial or maculopapular rash. Serious reactions, rarely encountered, include dermatological effects, acute nonthrombocytopenic purpura, chills, fever, fainting spells, angioneurotic edema, bronchial spasms, hypotensive crises, anuria, anaphylaxis, stomatitis and proctitis. Treatment should be symptomatic, and the drug not be reinstituted. **Dosage:** Usual dosage is one or two tablets before meals and at bedtime. Individualization of dosage is required for maximum therapeutic effect. Doses above twelve tablets daily are not recommended. **Supplied:** White tablets, each containing meprobamate 200 mg. and pentaerythritol tetranitrate 10 mg. ***Before prescribing, consult package circular.***

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syndrome there is found at the knee a degree of epiphysial retardation commensurate with the reduction in weight and length. In these babies, bone age cannot be used as a measure of gestational age as has been done in prematurity[5]. . . . Seven cases of neonatal thrombocytopenia occurred where mothers had received one of the thiazides as a diuretic during pregnancy. A sensitivity of certain babies is suspected. Reports of 3 cases and study of 3 generations in the family, including complete blood typing, suggest a possible genetic etiology for this syndrome[6]. . . .

Simultaneous measure of blood pressure by flush and direct methods in 88 children, including 25 newborns, showed that flush method gave a value between systolic and diastolic. When cuff was deflated at 5 mm./second, the flush value is approximately the mean pressure[7]. . . . Four of 14 infants whose mothers had onset of varicella 1 to 14 days before delivery acquired the disease 2 to 3 weeks after the mother started. The other 11 babies showed no chickenpox. All 3 neonates whose mothers had the onset of varicella in the first 3 postpartum days developed chickenpox 14 to 38 days later[8]. . . . An infant is reported who was born with tachycardia (this was also noted throughout labor), heart failure, tachypnea, hyperactivity, large thyroid, and exophthalmos. The baby also had hypoprothrombinemia and thrombocytopenia. The mother showed evidence of hyperthyroidism at 6 months' gestation, but apparently had received no specific therapy. Long-acting thyroid stimulator and thyroid-stimulating hormone were not increased in the infant's blood. The baby responded well to iodide, prednisone and reserpine[9]. . . . With the use of radioactive iron used intravenously in 5 newborns, the theory that the production of hemoglobin is low from 2 days to 2½ months was supported. The decrease in the production of hemoglobin F in the first few weeks of life was also shown[10]. . . .

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Rubin, A.: *Birth injuries: incidence, mechanisms, and end results.* Obstet. Gynec., 1964, **23**, 218.

Over an 8-year period covering 15,435 births at the University of Pennsylvania Hospital, there was 1 fetal injury in every 143 deliveries.

Following facial nerve injury, 16 per cent of infants had persistent facial muscle weakness and atrophy, despite the absence of gross lacerations of the face or facial nerve at delivery. Two infants who appeared anoxic at birth had persistent central facial weakness.

Brachial plexus injury was 17 times more frequent with breech than with cephalic presentations. Difficulty in arm delivery in breech presentation was usually the case in brachial plexus injuries and fractures of the humerus. There were definite residua from brachial plexus damage in 50 per cent of infants delivered by breech presentations and in 22 per cent of infants delivered by cephalic presentations. Any infant having brachial plexus injury should be suspected of other injuries elsewhere: fractures of the humerus and cervical spine, phrenic and radial nerve injuries.

Other injuries to the newborn in this series ranged from varied lacerations to skull fracture.

## Correspondence

Washington, D. C., August 31, 1964

Dr. Samuel Dessoff
President, The Doctors' Orchestra

Dear Sam:

On behalf of the National Medical Association, and personally, I want to thank you and the Orchestra for the concert for the N.M.A. on the evening of August 4. It was a tremendous success. Laudatory comments from out-of-town visitors who attended continue to be received.

The fact that warms my heart most, however, is that the group was willing to go through the inconvenience and tedium of special rehearsals in the off-season to make an expression of good will. I am very proud to be tolerated as a member of the fiddle section of the Orchestra.

With every good wish,

Sincerely,
W. Montague Cobb, M.D.
*President, National Medical Association, Inc.*

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Effective in controlling tetracycline-sensitive bacterial infection and providing symptomatic relief in allergic diseases of the upper respiratory tract. Possible side effects are drowsiness, slight gastric distress, overgrowth of nonsusceptible organisms, tooth discoloration. The last named may occur only if the drug is given during tooth formation (late pregnancy, the neonatal period, early childhood). Average Adult Dosage: 2 Tablets or 2 Teaspoonfuls of Syrup four times daily. The total average daily dosage for children, determined by the tetracycline content, is 10 to 20 mg. per pound body weight, divided into four equal doses.

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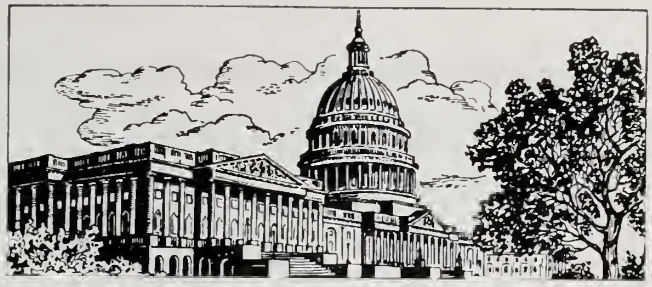

# NEWS & PERSONALS

## Summary of Executive Board Actions

**The Executive Board of the Medical Society of the District of Columbia** held its regular meeting, September 28, 1964, in the Society's building. Present in addition to the Chairman, Dr. Victor R. Alfaro, were Drs. C. Willard Camalier, Jr., J. Spencer Dryden, Harold M. Hobart, Raymond T. Holden, Edward W. Nicklas, Josephine E. Renshaw, Duane C. Richtmeyer, Paul R. Wilner, and Mr. George Cooley, Secretary. Present by invitation were Mr. Warren Magee, the Society's legal counsel, and Dr. William H. Ferguson. The Chairman called the meeting to order at 7:30 p.m.

**Committee Meetings:** The Secretary reported that the following committees had met since the Board's last meeting:

| | | |
|---|---|---|
| August | 6 | Traffic Committee |
| | 7 | Review Board for Prepaid Medical Care Benefits |
| | 12 | Committee on Medical Care |
| | 25 | Public Information and Education |
| September | 4 | Review Board for Prepaid Medical Care Benefits |
| | 9 | Committee on Poliomyelitis |
| | 9 | Board of Credentials |
| | 14 | Committee on Mental Health |
| | 15 | Grievance Committee |
| | 16 | Board of Credentials |
| | 17 | Traffic Committee |
| | 17 | Subcommittee of Medicolegal Problems with representatives of St. Paul Mercury Insurance Company |
| | 22 | Committee on Emergency Medical Service |
| | 22 | House Committee |
| | 22 | Committee on Medical Care |
| | 23 | Committee on Aging |
| | 23 | Committee on Hospital Relations |
| | 24 | Committee on Child Welfare |
| | 24 | Subcommittee of Medicolegal Problems with representatives of D. C. Bar Association |

**Board of Credentials:** The Executive Board approved the following recommendations of the Board of Credentials:

*Active Members*

Simon Leo Auster, 1607 34th Street, N.W.
John David Crummett, 1746 K Street, N.W.
Gerald Mervin Fenichel, 2125 13th Street, N.W.
Louis Gillespie, Jr., 1714 N Street, N.W.
Ervin Alexander Gombos, 2650 Wisconsin Avenue, N.W.
Spencer Gordon, Jr., 5225 Connecticut Avenue, N.W.
Michael Joseph Halberstam, 730 24th Street, N.W.
Lucie Ney Jessner, Georgetown University Hospital
Robert Ormiston Knox, 101 G Street, S.W.
Robert William Langevin, 1150 Connecticut Avenue, N.W.
Donald Francis Leon, 915 19th Street, N.W.
John Joseph Lynch, Washington Clinic
West Tabb Moore, 1835 Eye Street, N.W.
Neville Ottley, 2642 12th Street, N.E.
Seymour Rabinowitz, St. Elizabeths Hospital
Agnes Eva Schweitzer, 4513 46th Street, N.W.
William James Stockton, 1800 R Street, N.W.
Joseph Peter Swift, 915 19th Street, N.W.
Nina Bencich Woodside, D. C. Department of Public Health

*Affiliate Member*

Juan Gilberto Machado, 5803 Winston Street, Temple Hills, Md.

*Associate Members*

David Anders, 7016 Greig Street, Seat Pleasant, Md.
Abbas Bashir, 7501 Little River Pike, Annandale, Va.
Garry S. Brody, 1835 Eye Street, N.W.
Don Bruce Cameron, 3503 Perry Street, Mt. Rainier, Md.
Albert Donald Maizels, D.D.S., 1835 Eye Street, N.W.
A. Grace Pierce, 720 Dale Drive, Silver Spring, Md.
Jay Robert Shapiro, 8218 Wisconsin Avenue, Bethesda, Md.
Benny Waxman, 1621 South 23rd Street, Arlington, Va.

*Transfers*

*Resident-Intern to Active:* Donald W. Datlow and John L. Fox

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*Affiliate to Associate:* S. Jack Sugar
*Active to Special:* Samuel M. Bageant and Daniel L. Seckinger

*Resignation*

*Active:* Stephen F. Verges

**Review Board for Prepaid Medical Care Benefits:** Dr. Ferguson had asked to appear before the Board to present his objections to the activities of the Review Board for Prepaid Medical Care Benefits. Dr. Ferguson read a number of letters which he believed to be setting his fees and which resulted from Review Board decisions regarding usual and customary fees. He recommended that the Review Board be disbanded and that any matters involving dissatisfaction with fees be referred to the Grievance Committee. He recommended further that the Executive Board urge Medical Service of D.C. and insurance carriers to establish their own fees in connection with Major Medical coverage and publish these fees as indemnities.

The Executive Board agreed that some of Dr. Ferguson's points were well taken and that the Review Board's activities should be reconsidered. The Secretary distributed a proposal for the reorganization and operation of the Review Board. It was agreed that this proposal should be reviewed at a future meeting together with the points brought out by Dr. Ferguson.

The Board considered a letter from Dr. Allan M. McKelvie stating that the officers of the Washington Orthopedic Club would alternate in attending the meetings of the Review Board. A motion was made and carried that Dr. McKelvie be advised that the members of the Review Board are appointed by the President of the Medical Society and approved by its Executive Board. In view of this, Dr. McKelvie's name will remain as a committee member, but if he is unable to attend, Dr. Robert L. Dow and Dr. Charles Keck will be considered alternates, but this will not obtain annually for officers of the group. Each year new names must be submitted to the President if alternates are desired.

**Public Health Activities:** Guidelines for reviewing public health activities had been submitted to the Board previously for their review. They were approved by the Board and will be submitted to the Society at its Annual Business Meeting.

**1965 Annual Scientific Assembly:** The dates, November 18, 19 and 20 (Thursday, Friday and Saturday) were approved for the 1965 Assembly, to be held at the Hotel Statler-Hilton.

**Grievance Committee:** In order to increase its efficiency this Committee requested permission to use a stenographer when members appear before that Committee. The Board voted that the Committee try the Society's tape recorder for this purpose rather than employ a public stenographer.

**Committee on Poliomyelitis:** In view of the recent press release from the Surgeon General of the Public Health Service, the Committee voted to cancel its polio makeup scheduled for October 24.

There being no further business, on motion the meeting adjourned.

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# Meetings

**A Conference on Blood and Blood Banking** will be sponsored by the American Medical Association at the Drake Hotel, in Chicago, December 11 and 12; the theme of the Conference will be "Blood Banking—Medical Evaluation and Participation." Since the program will be directed to practicing physicians, Dr. Gunnar Gundersen, Chairman of the AMA Committee on Blood, is hopeful that state and local medical societies will be represented. Information on the program may be obtained from the Department of Environmental Health of the AMA, 535 North Dearborn Street, Chicago, Ill. 60610.

# General News

**The Washington Psychoanalytic Society and Institute** celebrated its move into a building, recently purchased and renovated, at 4925 MacArthur Blvd., N.W.

The occasion began with a morning meeting, September 26, at Sibley Memorial Hospital. Greetings were extended to those present by Dr. Sidney Berman, President of the Society. Remarks were also made by Dr. Alexander Halperin, Director of the Institute; Dr. Rex E. Buxton, Chairman of the Education Committee; Dr. Edith Weigert, former President of the Society and former Director of the Institute; Dr. Douglas Noble, former President of the Society; and Dr. William V. Silverberg, of New York City, the only charter member of the Society present. Dr. Silverberg recalled that the Society was organized in the office of Dr. Ernest E. Hadley at 1835 Eye Street, N.W. on May 31, 1930. Among the invited guests was Dr. Edward W. Nicklas, President of the Medical Society of the District of Columbia. Following the meeting members and guests adjourned to the new building for inspection of the offices and for a buffet luncheon.

The Washington Psychoanalytic Society is an affiliate of the American Psychoanalytic Association. There are at present 120 members in the Society and 113 candidates in training at the Institute. The Society was formerly located at 1720 M Street, N.W.

**Medical Service of the District of Columbia and Group Hospitalization, Inc.,** announced, September 30, that Blue Shield benefits being offered by the Senior Citizen Program were substantially increased, at no additional cost to the subscribers, effective November 1. The Senior Citizen Program was open for new subscribers, October 1 through October 16.

New and improved Blue Shield benefits are as follows:

1. Benefits for clinical laboratory services and diagnostic X-ray services will be provided regardless of where the services are rendered.
2. Benefits will be provided for electrocardiograms, electroencephalograms, tonography, basal metabolism examinations, and electroshock therapy, regardless of where the services are rendered.
3. Benefits will be provided for the services of a consultant requested by the attending physician (once during any hospital admission) when such services are rendered in a hospital.
4. Benefits will be provided for service rendered by a physician in his office or in the outpatient department of a hospital for emergency first aid treatment within 72 hours of an accident if no other surgical benefit is payable.

The last three are new benefits. The first has applied before only if the patient was hospitalized as a registered bed patient. Other benefits provided under the Senior Citizen Program for surgery, administration of anesthetics, physicians' visits, and for hospital and nursing care remain unchanged.

**Dr. Robert A. Bier** has been appointed **Chief Medical Officer of the Selective Service System,** effective July 1, 1964. He succeeds Captain Edward L. C. Thomas, USN (Ret.).

Dr. Bier retired from active practice, July 1, after 35 years of consecutive practice in the Washington Metropolitan Area with the exception of the War years. He served with the Medical Corps of the Army during World War II for a period of 7 years, and held the rank of Colonel. He was a member of the D. C. Medical Society from 1930 to 1959.

**Colonel Norman E. Peatfield, MC, USA,** has been **appointed Executive Director of the Office for Dependents' Medical Care,** effective September 21. He has succeeded Major General Howard W. Doan, who retired on September 1. Colonel Peatfield received his medical degree from Tufts Medical School in 1936 and holds a Master's degree and a doctorate in Public Health from Harvard University.

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**Dr. William J. Peeples,** who was Health Officer for Montgomery County, Maryland, from 1955 to 1963, has been **appointed Maryland State Commissioner of Health** by Governor Tawes. Dr. Peeples resigned his county post in 1963 to become head of the Bureau of Chronic Diseases in the California State Department of Public Health. He will replace Dr. Perry F. Prather, who will retire on December 1.

**Dr. Dorland J. Davis** has been **appointed Director of the National Institute of Allergy and Infections Diseases.** He succeeds Dr. Justin M. Andrews, who has retired after 22 years of Federal service, including 7 years as Director of NIAID. Dr. Davis was formerly Director of Intramural Research at the Institute. He received both his medical degree and degree in Public Health from Johns Hopkins University.

**The Public Health Service** has announced distribution of 5 new publications relating to cancer and diseases of the heart. Single copies of all 5 are available without charge from the Public Health Service, Washington 25, D. C.

Three of the publications are from the National Cancer Institute:

**"Cancer of the Lung,"** which is the fifth in a new series of 10 publications dealing with cancer of different body sites. Copies may be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20204 at 10 cents a copy, or $5.00 per 100 copies.

**"End Results in Cancer: Report No. 2,"** which summarizes the experience of more than 100 hospitals in the United States in treating thousands of cancer cases during four 5-year periods, from 1940 through 1959. This is available from GPO at 75 cents a copy.

**"Cancer Rates and Risks"** is a 93-page publication in question-and-answer form and is addressed primarily to physicians, medical students, public health workers, cancer educators, and others interested in the course of cancer in individual patients or its effect on various populations. It is available from GPO at 40 cents a copy.

**"Smoking and The Heart,"** from the National Heart Institute, is the first in a planned series dealing with various aspects of the Report on Smoking and Health of the Advisory Committee to the Surgeon General of the Public Health Service. Copies may be purchased from GPO at 5 cents each, or $2.00 per hundred.

**"Up and Around"** has been issued by the Heart Disease Control Program of the Public Health Service. This booklet is intended to help doctors, nurses, therapists, and families teach the stroke patient how to take care of his daily needs. It supplements the widely-used companion booklet, "Strike Back at Stroke," which emphasizes prevention of further disability of the stroke patient by means of proper positioning in bed, range-of-motion exercises, and other restorative measures. Both booklets are to be used under a physician's direction. "Up and Around" may be purchased from GPO at 50 cents each, or $37.50 per hundred.

## Personals

**Dr. George I. Mishtowt** was sworn in, September 13, as a Foreign Service Officer Class 1, Consul General and Secretary. This is the first time a physician in the Foreign Service has been named to the FSO Corps. It recognizes "his excellent performance during the 9 years that he has served with the Medical Division with the Department of State and Foreign Service and of his executive ability, as well as his high level of professional competence."

**GEORGE I. MISHTOWT, M.D., Assistant Medical Director, Department of State; first physician named to Foreign Service Officer Corps.**

Dr. Mishtowt, a graduate of Georgetown University School of Medicine (1942), joined the Foreign Service in 1955 after 5 years of private practice in internal medicine. He was assigned to the Embassy of Baghdad, Iraq as the first Medical Officer located abroad. His next post was Manila, in the Philippine Islands, and after a 3-year tour of duty there he came to Washington as Assistant Medical Director for U. S. Programs and Clinical Activities, Department of State, in which capacity he has served since 1962.

**Dr. Howard S. Madigan,** who has been serving as Associate Medical Director at D. C. General Hospital, has accepted a position as Director of Medical Education at St. Vincent's Hospital in Toledo, Ohio. Dr. Madigan has been on the teaching staff of Georgetown University School of Medicine as Clinical Instructor of Surgery since 1952. For many years he has devoted much of his time to activities of the D. C. Medical Society. Among them, over the past few years, has been the selection of items for the monthly *Current Medical Events in the Nation's Capital.*

**Dr. Grace H. Guin** resigned her position as Director of Laboratories at Children's Hospital and has accepted a position at Arlington County (Virginia) Hospital as Associate Pathologist.

**Dr. Fred O. Coe,** senior member of the firm Drs. Groover, Christie and Merritt, radiologists to Doctors Hospital and the Washington Hospital Center, has moved to California. His address is 1680 La Vereda, Berkeley. Dr. Coe has had a long and distinguished career in his specialty in the Washington Metropolitan Area. He was Professor of Radiology at Georgetown University School of Medicine from 1929 to 1945. For a great many years he served as Vice President of the Washington Academy of Sciences representing the Medical Society of the District of Columbia.

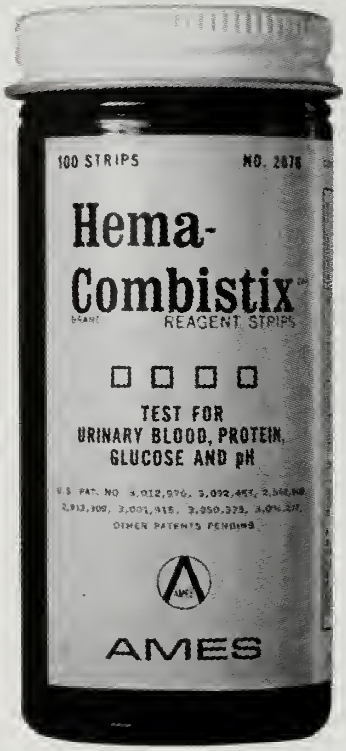
The following members of the D. C. Medical Society were among the 1,125 surgeons inducted into **Fellowship in the American College of Surgeons** in Chicago, October 8, during its 5-day Clinical Congress: **Drs. T. Crandall Alford, Jerome W. Canter, Edward E. Cornwell, Jr., Pasquale DeFelice, Armando G. Dibiasio, James T. Estes, LaSalle D. Leffall, Jr., and William E. Matory.**

## Join the Army Medical Corps Reserve

PHYSICIANS who are interested in joining an active reserve unit of the Army Medical Corps are invited to contact the 2290th U. S. Army Hospital, Rockville, Maryland. This unit is commanded by Dr. Joseph J. Wallace (Colonel, Medical Corps, USAR), and when fully staffed will be capable of operating a 1000-bed hospital.

The physicians of this unit are currently engaged in a program to attract about 50 more physicians, to fill vacancies ranging from the grade of captain to lieutenant colonel. Meetings are held on the first and third Thursdays from 8 to 10 p.m. and on the first Sunday of each month; a day's pay is earned for each meeting attended. In addition, members attend summer camp for 15 days each year and receive full pay and allowances.

Physicians of all specialties and general practitioners are needed. Residents and interns fit well into the program, and some individuals obtain credit in fulfillment of military obligations. Physicians just returning from active duty may join and continue their military affiliation while functioning as civilian doctors in the local communities.



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Doctors who are interested in obtaining more information concerning the 2290th U. S. Army Hospital are urged to telephone Poplar 2-5222, or visit or write the Hospital at the Army Reserve Armory, 1850 Old Baltimore Road, Rockville, Maryland.

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# Obituaries

## Walter Kendall Myers, B.S., M.D., F.A.C.P.

(1903–1964)

Dr. Walter K. Myers, well known specialist in heart and rheumatic diseases, died, August 31, 1964, at the Clinical Center, National Institutes of Health, in Bethesda, Md.

A native of Mercersburg, Pa., Dr. Myers was born, June 17, 1903. He was a graduate of Princeton University, receiving his Bachelor of Science degree in 1925. After graduating in medicine from Johns Hopkins University in 1929, he interned at Johns Hopkins Hospital and served as resident physician at Thorndike Memorial Laboratory, Boston City Hospital, from 1931 to 1934. He practiced his specialty, internal medicine, in the District of Columbia from 1934 until he retired in 1962. His offices were at 1834 Eye Street, N.W.

Dr. Myers was Senior Attending Physician at Emergency Hospital from 1934 until 1958, and at the Washington Hospital Center the following year. He continued as a consultant to the Washington Hospital Center until he retired. He was also consultant in internal medicine to Glenn Dale Sanitarium and the Washington Home for Incurables. He was on the faculty of George Washington University School of Medicine from 1935 to 1962.

He was a Fellow of the American College of Physicians, an Active member of the Medical Society of the District of Columbia from 1935, and a member of the American Medical Association, the American Rheumatism Association, and the American Heart Association. He also was a member of 2 honorary societies, Phi Beta Kappa and Alpha Omega Alpha. He had contributed many articles to the literature.

He was a Life Trustee of the National Geographic Society and a Director of the American Security and Trust Company. He had been an elder in the National Presbyterian Church since 1946.

Endowed with a keen intellect, Dr. Myers had a quick wit and capacity for understanding his fellow man that brought him the warmth and admiration of friends, patients and colleagues alike.

He was married to the former Carol Grosvenor, who is the daughter of Dr. and Mrs. Gilbert H. Grosvenor and granddaughter of Alexander Graham Bell. She survives him, together with 5 children: Walter K., Jr., a student in Bologna, Italy; Lt. Gardiner H. Myers, with the Army at Aberdeen, Md.; Martin G., a student at Johns Hopkins Medical School in Baltimore; and Alexander M. and Elsie Frances, of the home address, 3011 45th Street, N.W.

## David N. W. Grant, M.D. F.A.C.S.

(1891–1964)

Major General David N. W. Grant, the first Air Surgeon of the United States Air Force, died, August 16, 1964, at his home in Winter Park, Florida.

Dr. Grant was born in Richmond, Va., May 14, 1891. He received his medical degree from the University of Virginia in 1915. He was also a graduate of the Army Medical School, School of Aviation Medicine, Air Corps Tactical School, and Chemical Warfare School. He held an honorary degree, Doctor of Science, from the Hahnemann Medical College.

After a long and distinguished medical career in the military services Dr. Grant was named Chief Surgeon of the Army Air Force in 1941. He retired from the Air Corps with the rank of Major General in 1946. He was credited with pioneering mass evacuation of the wounded by air when the Air Corps flew a trial mission at the beginning of World War II.

Upon retirement in 1946 he moved to Virginia Beach, Va. He returned to Washington in 1951 to become National Director of the Red Cross Blood Program and he held this post until 1956. At that time he accepted another assignment, head of the medical program for the Hungarian refugee camps in Europe.

General Grant was elected an Honorary member of the Medical Society of the District of Columbia in 1944. He was a Fellow of the American College of Surgeons and a member of the American Medical Association, the Association of Aviation Medicine, and the Association of Military Surgeons of the United States. He held the Distinguished Service Medal and was an honorable member of the Military Division of the Order of the Bath.

His wife, Mrs. Dorothy Grant, of 671 Williams Drive, Winter Park, survives him. He also leaves a son, David N. W. Grant, Jr., of Baltimore, Md.

## Cervera Rochester Little, B.S., M.D.

(1905–1964)

Dr. Cervera R. Little, Washington physician and surgeon, died, August 14, 1964, at his home, 1705 Webster Street, N.W. His offices were at 38 Florida Avenue, N.W.

Born in Rockingham, North Carolina, June 15, 1905, Dr. Little moved with his family as a boy to Newport News, Virginia. He graduated from the Agricultural and Technical College of North Carolina in 1931 and from Howard University College of Medicine in 1935. He interned at Freedmen's Hospital in Washington and the Homer S. Phillips Hospital in St. Louis, Mo., and served a 2-year residency at Wheatley Provident Hospital in Kansas City, Mo.

During World War II, from 1942 to 1946, he served in the Medical Corps of the Army. He was discharged with the rank of Major. Except for the War years he had been on the attending staff of Freedmen's Hospital and on the teaching staff of Howard University as Clinical Instructor in Surgery since 1939.

He was elected to Active membership in the Medical Society of the District of Columbia in 1957. He was a member of the National Medical Association, the Association of Military Surgeons of the United States, the American Heart Association, the Association of American Medical Colleges, the Medico-Chirurgical Society of the District of Columbia, and the Washington Heart Association. He was a member of the Board of Directors of the 12th Street YMCA, a member of the D. C. Commissioners' Youth Council, and medical advisor to Local Board No. 4 of Selective Service.

He leaves his wife, Mrs. Althea Saunders Little, a son, Cervera R., Jr., and a daughter, Joyce S., all of the home address.

## George Louis Rivat, B.S., M.D.

(1926–1964)

Dr. George L. Rivat, an orthopedic surgeon in Montgomery County, Maryland, died suddenly, September 1, 1964. He lived at 8600 16th Street, Silver Spring, Md. and his offices were at 9911 Georgia Avenue, also in Silver Spring.

Dr. Rivat was born in New York City, August 17, 1926. He earned 2 degrees from Georgetown University, Bachelor of Science in 1948 and Doctor of Medicine in 1953. After interning a year at King's County Hospital in Brooklyn, N. Y. he took postgraduate courses in surgery at Maimonides Hospital in Brooklyn and in orthopedic surgery at Bronx Municipal Hospital, New York City, and at the Washington Hospital Center in Washington, D. C. He also trained for a year in his specialty at Kernan's Hospital for Crippled Children in Baltimore, Md.

Elected an Active member of the Medical Society of the District of Columbia in 1959, Dr. Rivat transferred his membership to Associate in 1962. He was certified by the American Board of Orthopedic Surgeons. He was an Active member of the Montgomery County (Maryland) Medical Society and a member of the American Fracture Society and the Georgetown Clinical Society.

Surviving him are his wife, Dr. Lucia Rivat, of 3726 Connecticut Avenue, N.W.; his father, Antoine Rivat, of 2019 Eye Street, N.W., and his mother, Mrs. Helene B. Rivat, of 2131 Florida Avenue, N.W.

### Hemodynamic Aspects of Hepatorenal Failure—Cohn

*(Continued from page 569)*

were a significant factor in his clinical deterioration. Intravenous infusion of ascitic fluid was employed in an effort to improve hemodynamics. The dramatic reversal of terminal hepatorenal failure on 2 occasions points out the importance of considering circulatory phenomena in the management of this disease state.

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*Side Effects and Precautions*—Urinary hesitancy, xerostomia, mydriasis and, theoretically, a curare-like action may occur. The drug is contraindicated in patients with glaucoma or severe cardiac disease.

*Dosage*—The usual adult dosage is one tablet of 15 mg. with meals and two at bedtime; this amount may be doubled or tripled for patients with severe conditions. Pro-Banthīne (brand of propantheline bromide) is supplied as tablets of 15 mg. and, for parenteral use, as serum-type ampuls of 30 mg.

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*Research in the Service of Medicine*

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controls appetite all day long with a single morning dose

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*Side effects* (chiefly nervousness and insomnia) are infrequent, and usually mild and transitory.

*Cautions:* 'Eskatrol' *Spansule* capsules should be used with caution in the presence of severe hypertension, advanced cardiovascular disease, or extreme excitability. There is a possibility, though little likelihood, of blood or liver toxicity or neuromuscular reactions (extrapyramidal symptoms) from the phenothiazine component in 'Eskatrol' *Spansule* capsules.

*Contraindications:* Hyperexcitability, hyperthyroidism.

Before prescribing, see SK&F Product Prescribing Information.

*Supplied:* Bottles of 50 capsules.

1. Dorfman, W., and Johnson, D.: *Overweight Is Curable*, New York, The Macmillan Company, 1948, p. 16.

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In sinusitis, colds, U.R.I., Dimetapp lets your “stuffed-up” patients *breathe easy again*. Each long-acting Extentab provides clear relief for up to 10-12 hours, yet seldom causes drowsiness or overstimulation.

**BRIEF SUMMARY:** ***Indications:*** Dimetapp reduces nasal secretions, congestion, and postnasal drip for symptomatic relief of colds, U.R.I., sinusitis, and rhinitis. ***Side Effects:*** In high dosages, occasional drowsiness due to the antihistamine or CNS stimulation due to the sympathomimetics may be observed. ***Precautions:*** Administer with caution in the presence of cardiac or peripheral vascular diseases and hypertension. ***Contraindications:*** Antihistamine sensitivity. Not recommended for use during pregnancy.

*Clinical report on file, Medical Department, A. H. Robins Co., Inc.

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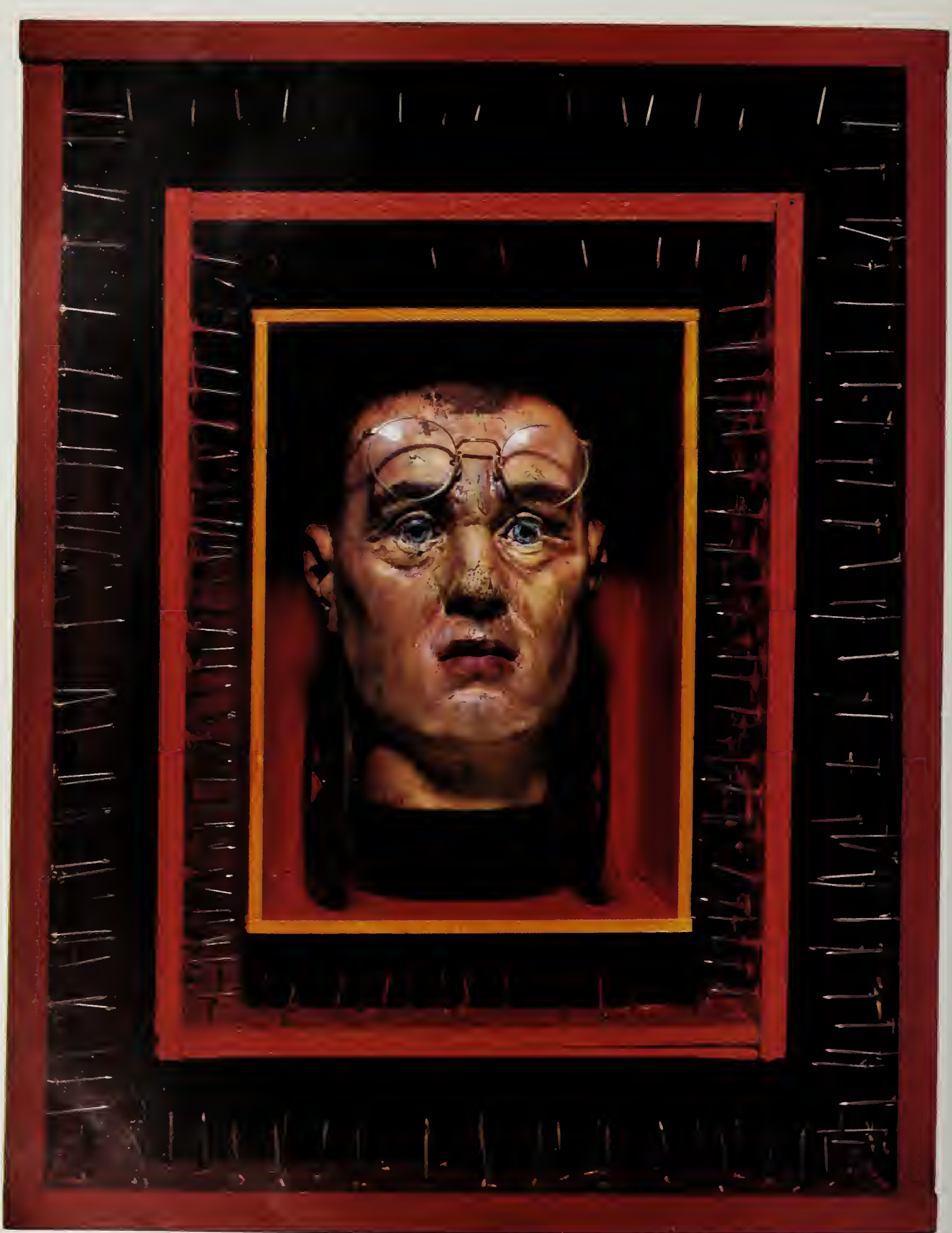

THE ULCER LIFE

In this "pop art" assemblage, artist Bob Sullivan depicts "the ulcer life" as man-in-a-box. The wall of nails closing in might well symbolize the torturous demands of a rigid, conformist society. As for the man, his disembodied psyche moves relentlessly onward with the blank, fixed stare of a man who has lost control of his own destiny. Small wonder that his gastric mechanism rebels.

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glycopyrrolate 2 mg. phenobarbital 16.2 mg. (warning: may be habit forming)

When glycopyrrolate was first introduced, clinicians were immediately impressed by the remarkable ability of this compound to exert a more specific pharmacologic action on the gastrointestinal tract than on other organ systems. For example, they often found that in difficult patients the dosage could easily be adjusted upwards to achieve the desired suppression of both hypertonicity and secretion . . . without paying the penalty of side effects intolerable to the patient. Thus, it is no surprise that many clinicians suggested that a double-strength 2 mg. tablet of glycopyrrolate would be both practical and useful. For those patients ordinarily unresponsive to anticholinergics or for those exhibiting the more prominent symptoms, the new Forte dosage forms are a worthwhile addition to your ulcer armamentarium.

## BRIEF SUMMARY

INDICATIONS: In addition to its primary indications for duodenal and gastric ulcer, glycopyrrolate is indicated for other G-I conditions which may benefit from anticholinergic therapy. Robinul-PH Forte (glycopyrrolate 2 mg. with phenobarbital) is indicated when these situations are complicated by mild anxiety and tension.

CONTRAINDICATIONS: Glaucoma, urinary bladder neck obstruction, pyloric obstruction, stenosis with significant gastric retention, prostatic hypertrophy, duodenal obstruction, cardiospasm (megaesophagus), and achalasia of the esophagus, and in the case of Robinul-PH Forte, sensitivity to phenobarbital.

PRECAUTIONS: Administer with caution in the presence of incipient glaucoma.

SIDE EFFECTS: Dryness of mouth, blurred vision, urinary difficulties, and constipation are rarely troublesome and may generally be controlled by reduction of dosage. Other side effects associated with the use of anticholinergic drugs include tachycardia, palpitation, dilatation of the pupil, increased ocular tension, weakness, nausea, vomiting, headache, dizziness, drowsiness, and rash.

DOSAGE: Should be adjusted according to individual patient response. Average and maximum recommended dose is 1 tablet three times a day: in the a.m., early p.m., and at bedtime.

*See product literature for full prescribing information.*

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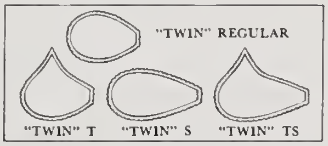

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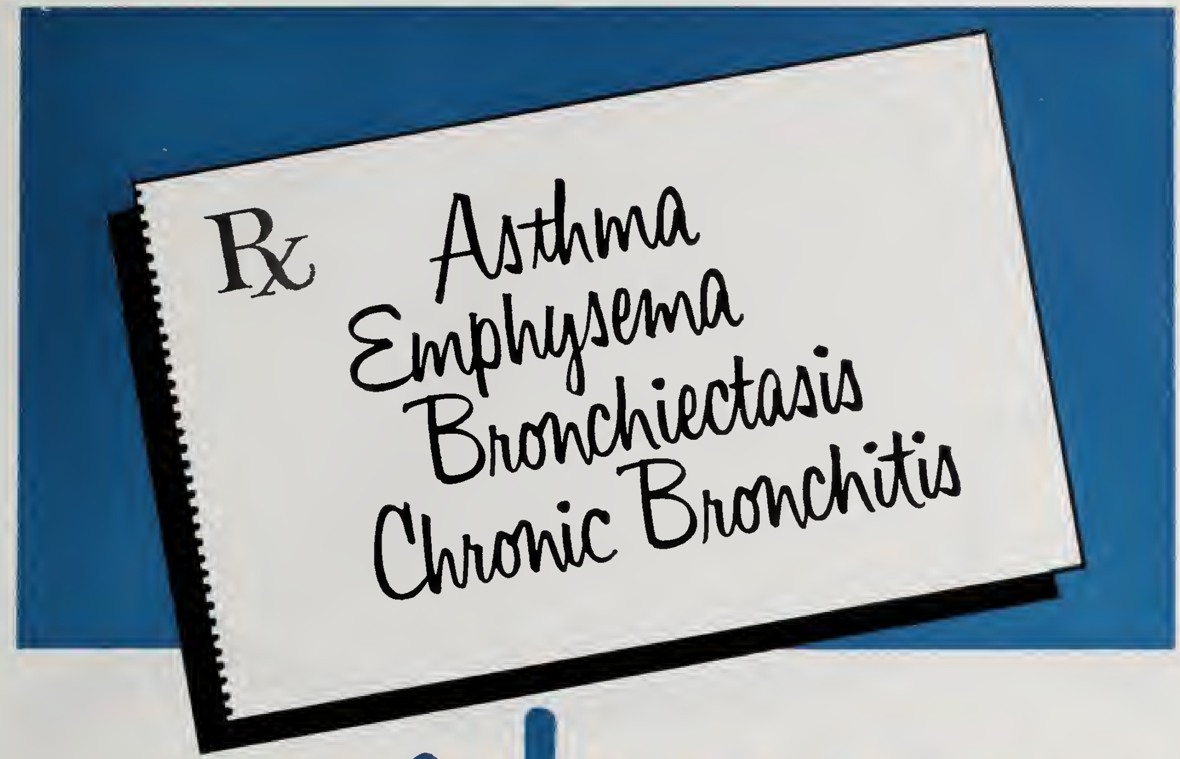

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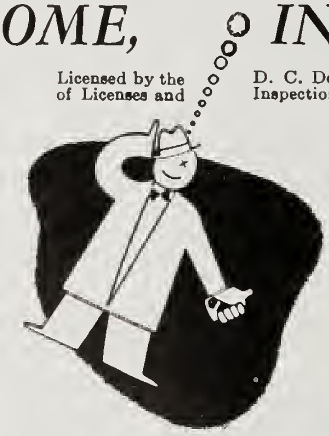

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# BOOKS RECEIVED

Acknowledgment is made of the following books which have recently been received.

**Synopsis of Pathology,** 6th ed. W. A. D. Anderson, M.A., M.D., F.A.C.P., F.C.A.P. Price, $9.75. Pp. 883, with 406 text illustrations and 4 color plates. St. Louis: Mosby, 1964.

**Massage—Principles and Techniques.** Gertrude Beard, R.N., R.P.T., and Elizabeth C. Wood, A.M., M.S., R.P.T. Price, $6.00. Pp. 163, with 257 illustrations by Vicki Catalani, Photographer, Art and Photography Department, Chicago Wesley Memorial Hospital. Philadelphia: Saunders, 1964.

**Dynamic Pathology. Structural and Functional Mechanisms of Disease.** Maurice M. Black, M.D., and Bernard M. Wagner, M.D. Price, $8.00. Pp. 296, with 34 figures. St. Louis: Mosby, 1964.

**Diseases of Metabolism: Detailed Methods of Diagnosis and Treatment,** 5th ed. Edited by Garfield G. Duncan, M.D.; 32 Contributors. Price, $28.00. Pp. 1551, illustrated. Philadelphia: Saunders, 1964.

**Corneal Contact Lenses.** By Members of the Contact Lens Section, Department of Ophthalmology, Baylor University College of Medicine, Houston, Texas. Editor: Louis J. Girard, M.D., F.A.C.S.; Associate Editors: Joseph W. Soper and Whitney G. Sampson, M.D. Price, $19.75. Pp. 329, with 342 photographs and diagrams, 56 in color on 6 plates. St. Louis: Mosby, 1964.

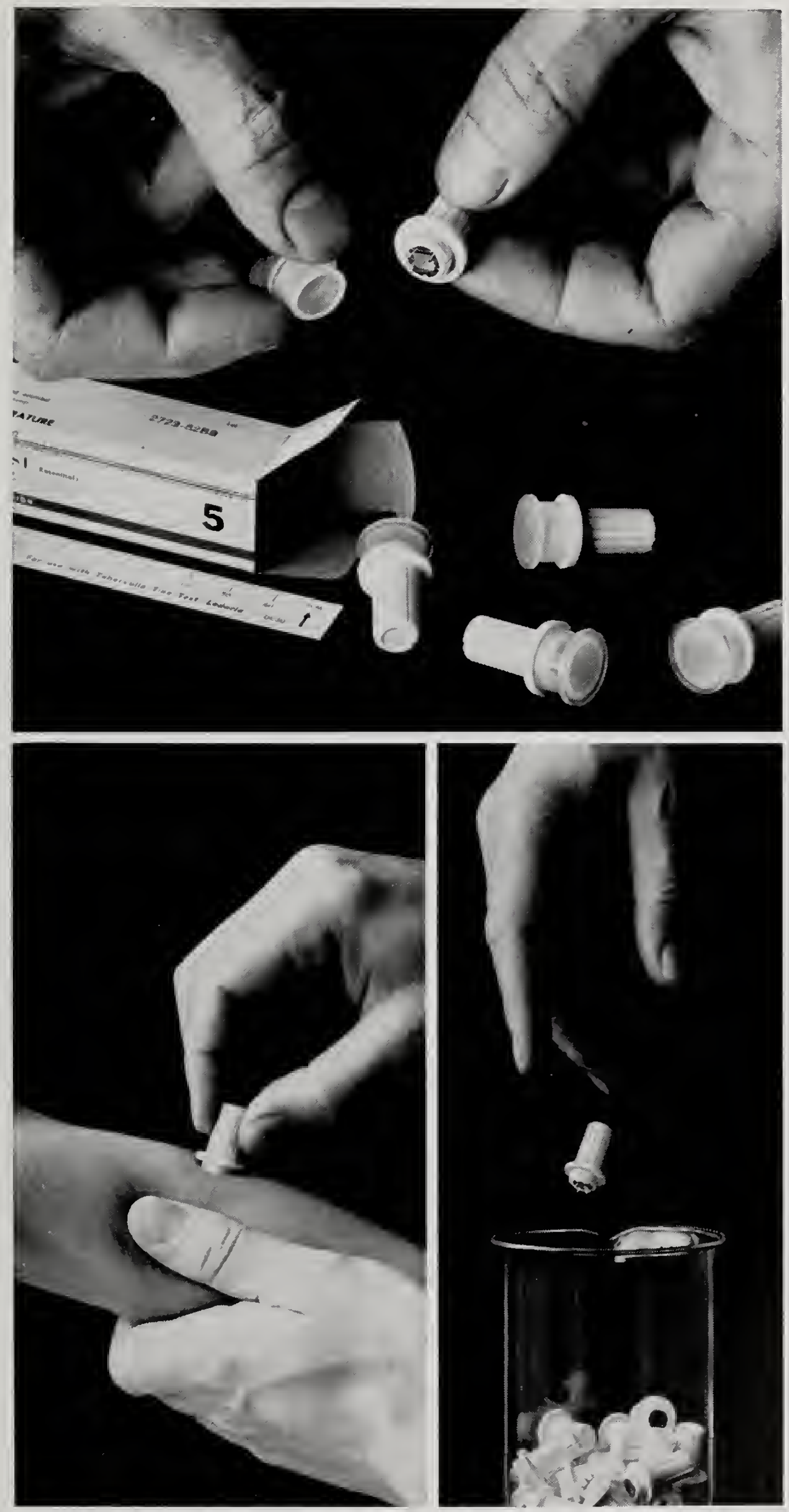
**X-ray Technology,** 3rd ed. Charles A. Jacobi, B.Sc., R.T. (A.R.R.T.), and Don Q. Paris, R.T. (A.R.R.T.). Price, $11.50. Pp. 452, with 306 figures. St. Louis: Mosby, 1964.

**Infectious Diseases of Children,** 3rd ed. Saul Krugman, M.D., and Robert Ward, M.D. Price, $15.75. Pp. 423, with 66 figures and 8 plates in full color, including a gatefold insert. St. Louis: Mosby, 1964.

**A Marriage Manual for Catholics.** William A. Lynch, M.D. With a Foreword by His Eminence, Richard Cardinal Cushing. Price, $4.95. Pp. 359. New York: Trident Press, 1964.

**Birth of a Drug. Research and Development in the Pharmaceutical Industry.** Austin Smith, M.D., and Robert J. Benford, M.D., Editors. Pp. 83, illustrated. Washington, D. C.: Pharmaceutical Manufacturers Association, 1963.

**Atlas of General Surgery,** 2nd ed. Joseph R. Wilder, M.D., F.A.C.S. Illustrated by Shirley Baty. Price, $23.50. Pp. 325. St. Louis: Mosby, 1964.



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## NATIONAL AND REGIONAL MEETINGS

**November 22–24: The Second National Conference on Cardiovascular Diseases. Sheraton-Park Hotel, Washington. Address: Dr. Cyrus H. Maxwell, Executive Secretary, 9650 Wisconsin Avenue, Washington, D. C. 20014**

November 28–29: American College of Chest Physicians (interim meeting). Fontainebleau Hotel, Miami Beach, Florida. Address: Mr. Murray Kornfeld, *Executive Director*, 112 East Chestnut Street, Chicago 11, Ill.

November 29–December 2: Clinical Meeting, American Medical Association. Auditorium and Exposition Hall, Miami Beach, Fla., and Americana Hotel, Bal Harbour, Fla. Address: Dr. F. J. L. Blasingame, *Executive Vice President*, 535 North Dearborn Street, Chicago, Ill. 60610

November 29–December 4: Radiological Society of North America. Palmer House, Chicago. Address: Dr. Maurice D. Frazer, *Secretary-Treasurer*, 1744 South 58th Street, Lincoln, Neb.

**December 4-5: American Rheumatism Association. Mayflower Hotel, Washington. Address: Dr. Morris Ziff, Executive Secretary, University of Texas, Southwestern Medical School, 4323 Harry Hines Blvd., Dallas, Texas.**

December 5–6: The Academy of Psychoanalysis. New York City. Address: Dr. Alfred H. Rifkin, *Secretary*, 125 East 65th Street, New York, N. Y. 10021

December 5–10: American Academy of Dermatology. Palmer House, Chicago. Address: Dr. Stanley E. Huff, *Secretary-Treasurer*, 636 Church Street, Evanston, Ill.

December 8–10: Southern Surgical Association. Boca Raton Hotel, Boca Raton, Florida. Address: Dr. George H. Yeager, *Executive Secretary*, University Hospital, Baltimore 1, Md.

December 11–12: AMA Conference on Blood and Blood Banking. Drake Hotel, Chicago. Address: Dr. Charles C. Edwards, 535 North Dearborn Street, Chicago 10, Ill.

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*Classified advertisements of a professional nature are free to members.*

## SITUATIONS WANTED

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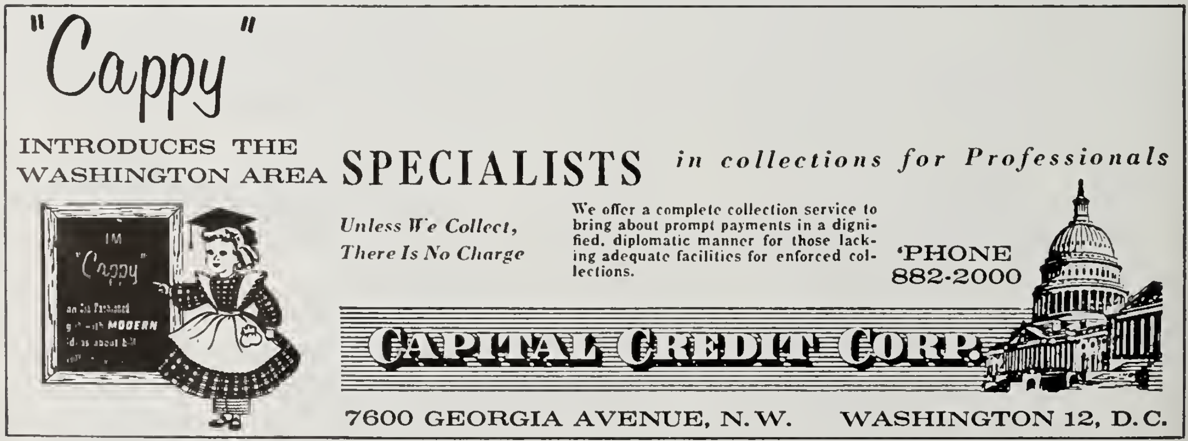

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JOURNALS WANTED

AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY, March, May and July 1964 issues, no longer available from the publisher. These particular issues are urgently needed by a foreign practicing gynecologist. Call MRS. FLEMING, Oliver 2-9070, from 9 to 5.

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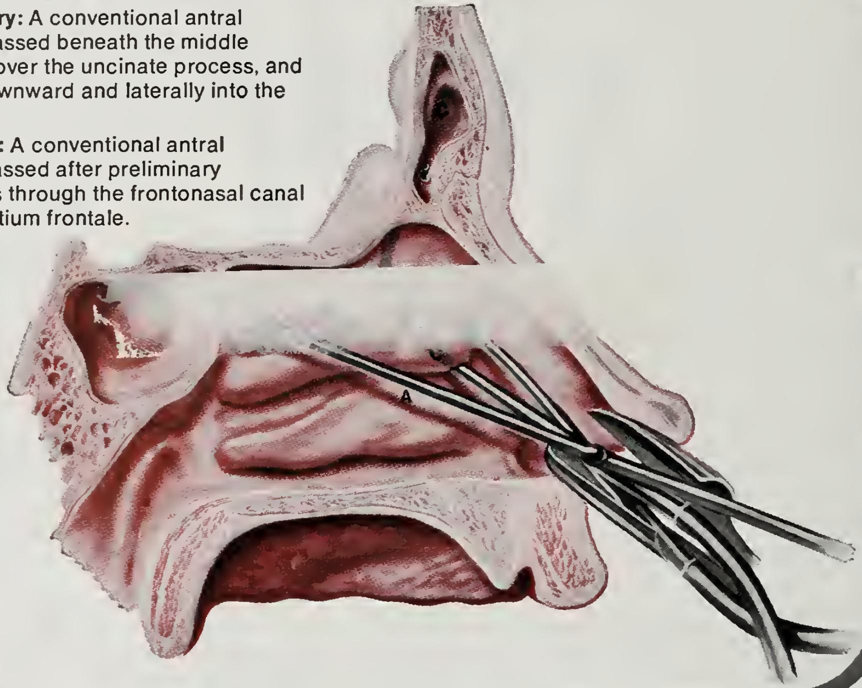

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*Reed, G. F.: Sinusitis, New England J. Med. 267:402, Aug. 23, 1962.

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Glenn T. Seaborg, Ph.D.

**The Navy Tissue Bank**
Lt. Comdr. Michael F. Dolan

**School Health**
Victor L. Assevero, M.D.

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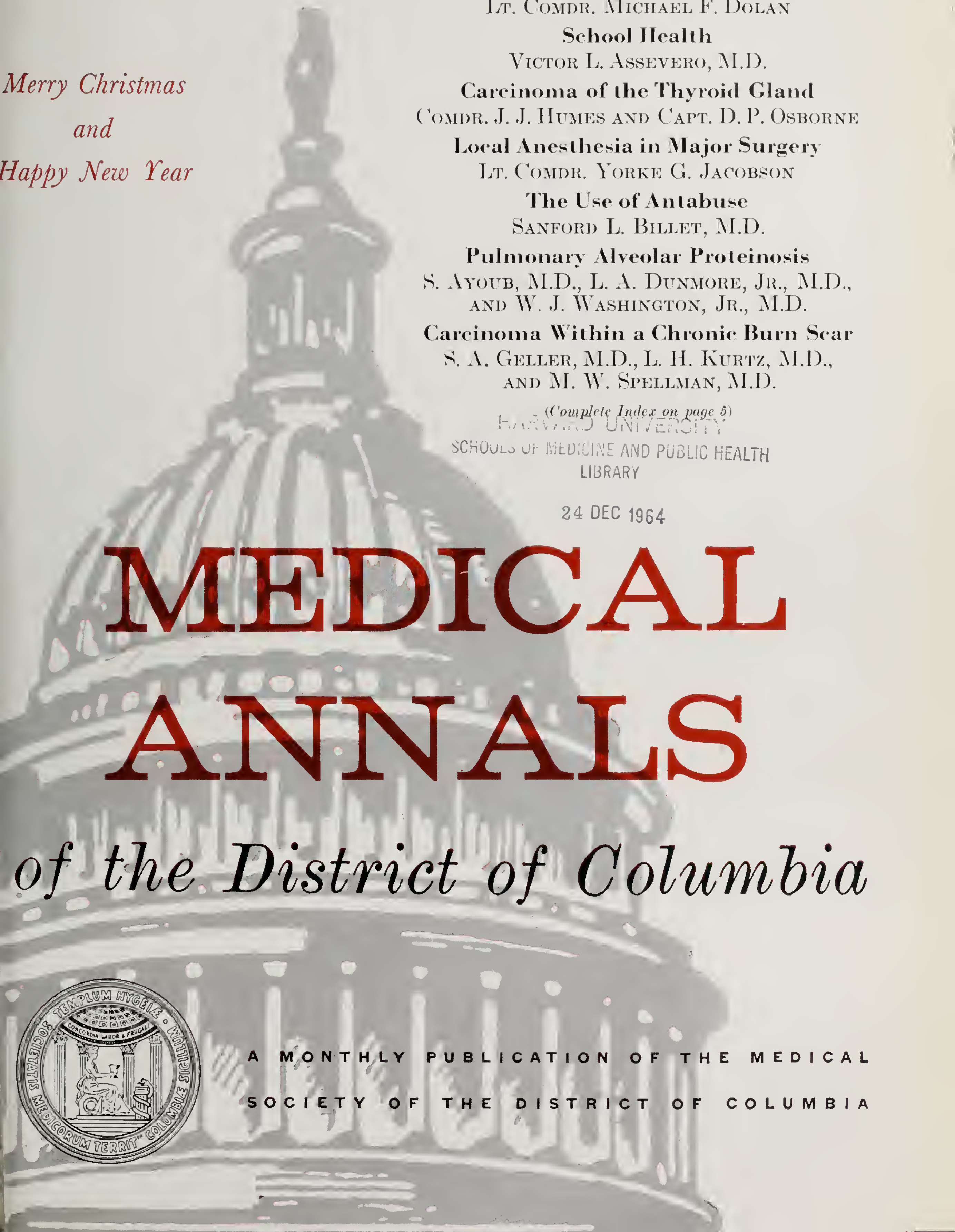

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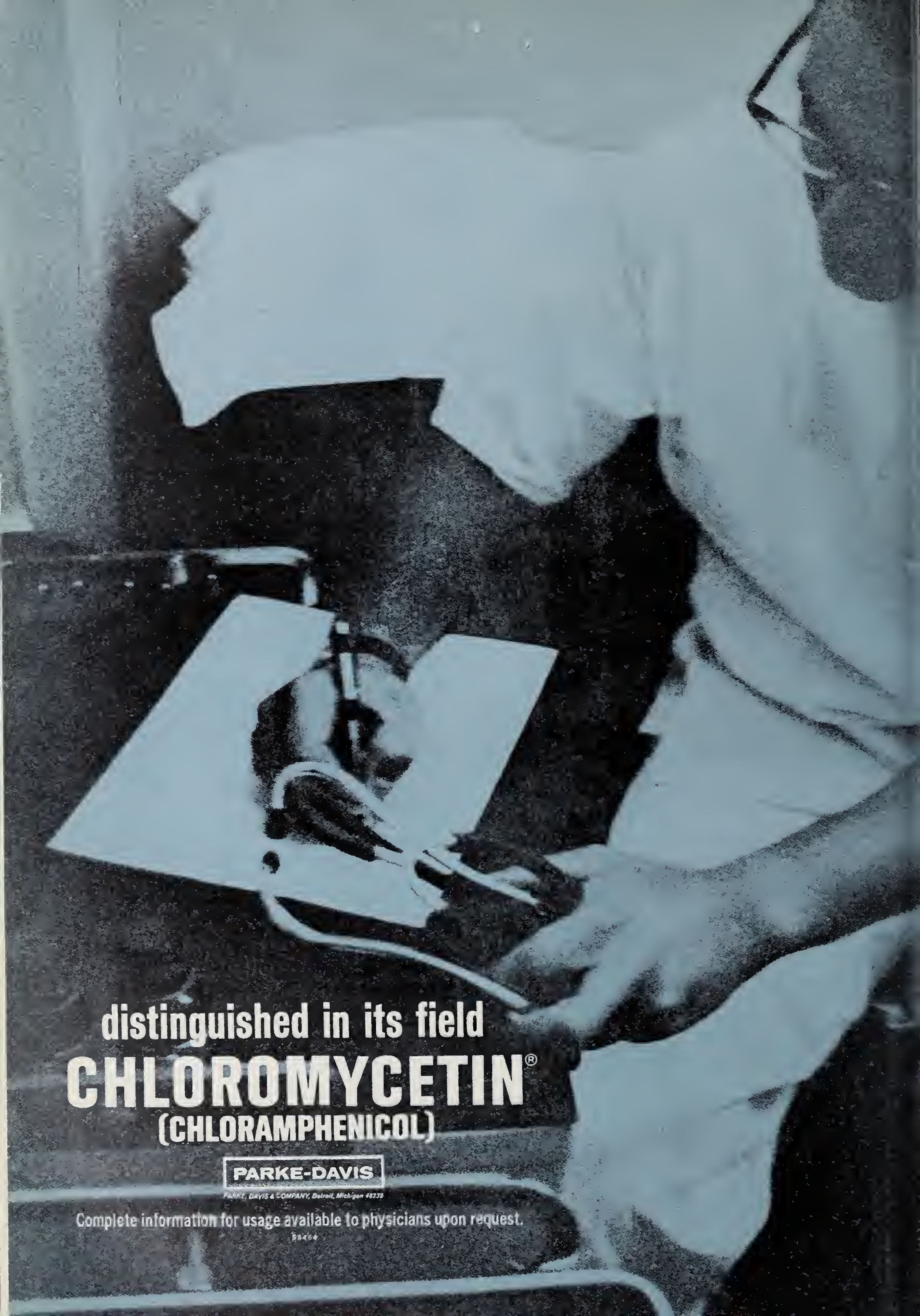

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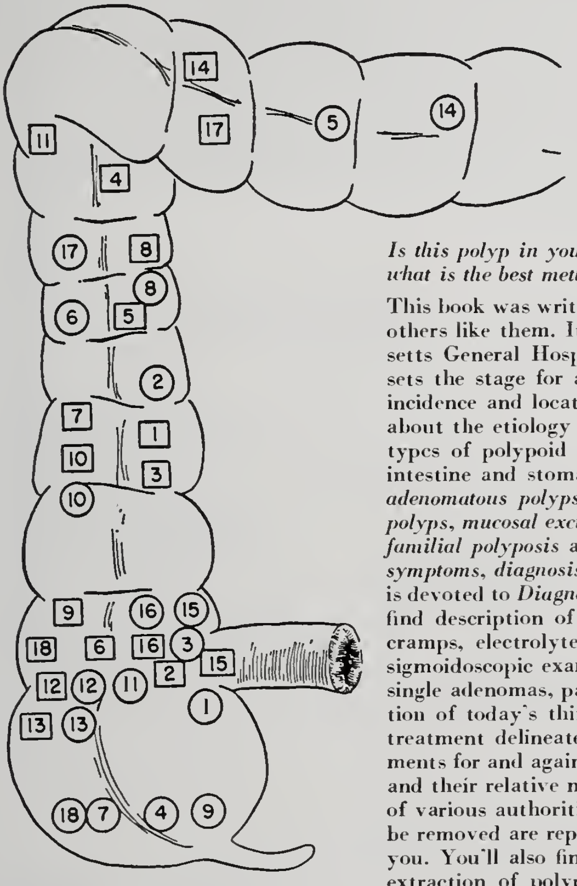

**Figure 3-25.** *Location of cancer and simple adenomas in resected cancers of the right colon. Squares locate cancers; circles, adenomas.*

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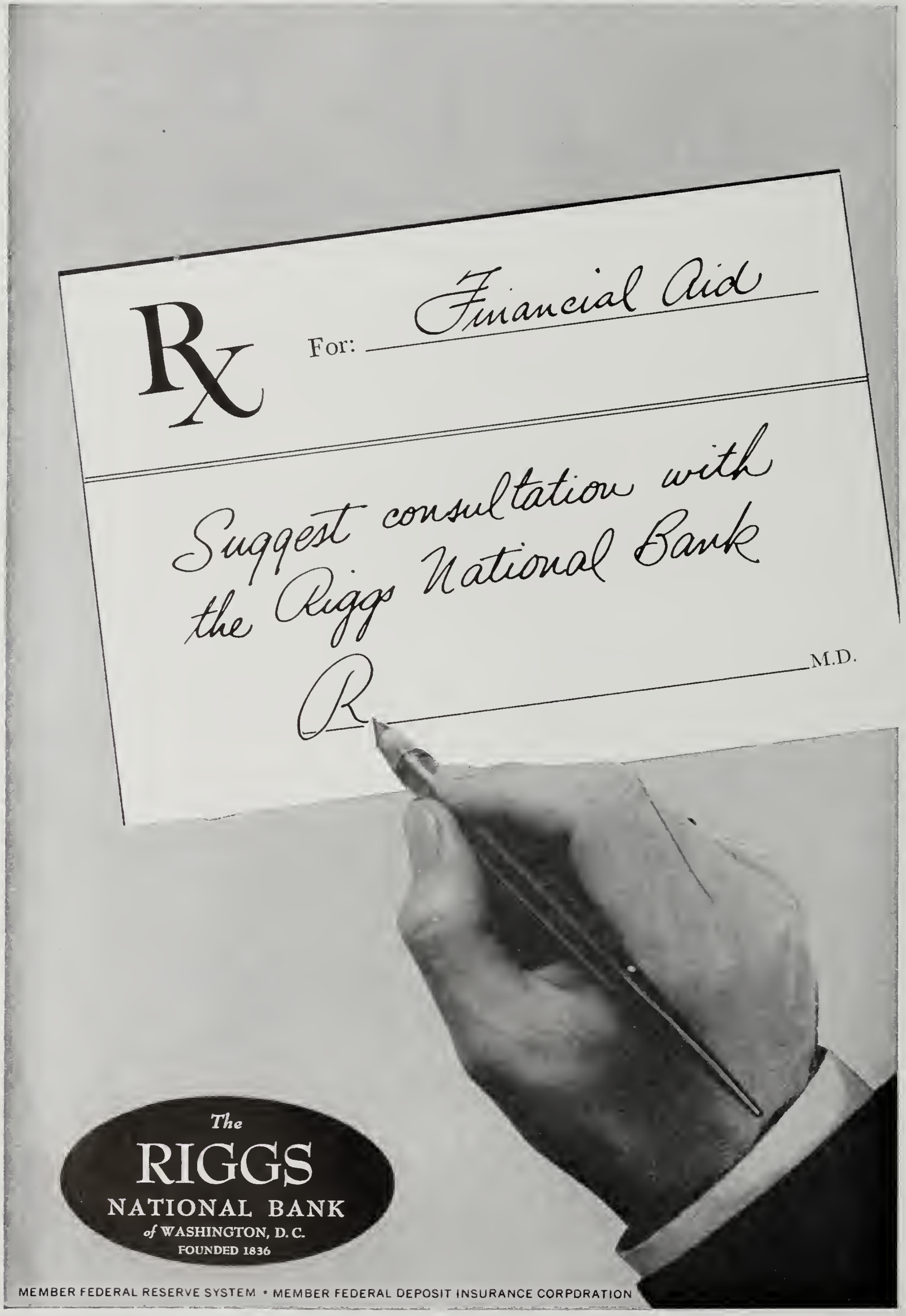
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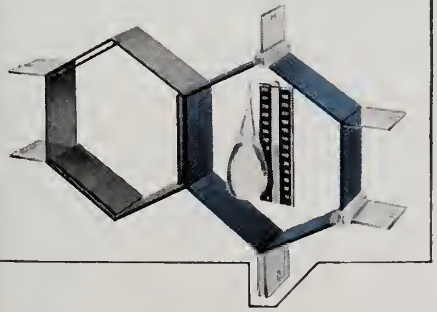

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1. Steigmann, F., and Griffin, R.: Evaluation of Quinethazone, a New Diuretic. J. Amer. Geriat. Soc. 11:945 (Oct.) 1963.

2. Schwartz, M.: Office Evaluation of a New Diuretic in Patients with Hypertensive Diseases. Scientific Exhibit Presented at the Clinical Meeting of the American Medical Association, Los Angeles, California, Nov. 25-28, 1962.

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# BOOK REVIEWS

**The Lungs and Its Disorders in the Newborn Infant.** Mary Ellen Avery, A.B., M.D. **Volume I in the Series: Major Problems in Clinical Pediatrics.** Alexander J. Schaffer, Consulting Editor. Price, $7.50. Pp. 224, with 72 illustrations. Philadelphia: Saunders, 1964.

From the first paragraph to the last Dr. Avery's monograph is impressive in its scope. Through 224 pages she has presented the various facets of the subject plus an incalculable amount of corroborative data, including 72 figures, 14 tables and more than 500 references, all in an orderly sequence which is as interesting as it is informative. The unique value of her work is its up-to-date information correlated with many of her personal experiences, which result from some years of investigating fetal and neonatal pulmonary conditions in animals and humans.

Dividing her work into 3 parts, the author devotes Part I to the Normal Development and Physiology of the Fetal and Neonatal Lung. She meticulously covers pulmonary fetal embryology and physiology, perinatal circulation, the regulation of respiration, methods of study of pulmonary function in infants, and a roentgenographic evaluation of the chest, the last being the work of Olga M. Baghdassarian, M.D.

Equal in importance to the normal development of the lung are its disorders and abnormalities, which are taken up in Part II. Congenital anomalies are discussed in detail, as well as the many infections, which include pneumonia, syphilis, tuberculosis, pneumocystis carinii and viral pneumonia. One chapter analyzes the hyaline membrane disease. This is followed by a careful examination, chapters 11–16, of important abnormal conditions, from Aspiration Syndromes to the Nonpulmonary Causes of Breathing Irregularities.

The solution of certain problems relating to the infant lung at birth, which is a matter of life or death for the newborn, is the subject of Part III, under the heading, Artificial Respiration. The special risk of asphyxia and the experimental and clinical evidence of the effects of asphyxia on the brain, together with the tolerance of the newborn to anoxia, are developed with Dr. Avery's customary thoroughness. She gives an impressive review of the criteria for resuscitation and outlines the techniques. A clinical summary, including a comprehensive table of Clues to Diagnosis of Types of Respiratory Distress, completes the monograph.

Even in conflicting situations like one arising during discussions of the hyaline membrane disease, Dr. Avery is able to give practical recommendations for a clinical approach and inspiration toward further research. The book contains much useful information, of value not merely to the pediatrician, the pulmonary physiologist, the pathologist, the pediatric thoracic surgeon and the anesthetist, but to all medical, paramedical, clinical and research workers who may be dealing with newborn infants.

Lucas L. Kulczycki, M.D.

**Massage—Principles and Techniques.** Gertrude Beard, R.N., R.P.T., and Elizabeth C. Wood, A.M., M.S., R.P.T. Price, $6.00. Pp. 163, with 257 illustrations by Vicki Catalani, Photographer, Art and Photography Department, Chicago Wesley Memorial Hospital. Philadelphia: Saunders, 1964.

This interesting little book by 2 physical therapists is essentially composed of 2 parts. The first, smaller part, gives a brief history of massage followed by a discussion of terminology. The authors point out the confusion in terms which has grown up over the years. They outline a system of terminology which appears to be clear and readily understandable. They emphasize the importance of writing an adequate prescription for massage including dosage, duration, frequency and type. Their chapter on the physiologic effects of massage is excellent.

The techniques of massage occupy most of the book. The text is clear and the illustrations adequately depict the points made in the text. The bibliography at the end of the book is complete.

This is not a text which should appear on the shelves of all physicians. However, it is a clear and well illustrated treatise on a much abused subject and could be read profitably by most physicians.

David A. Zohn, M.D.

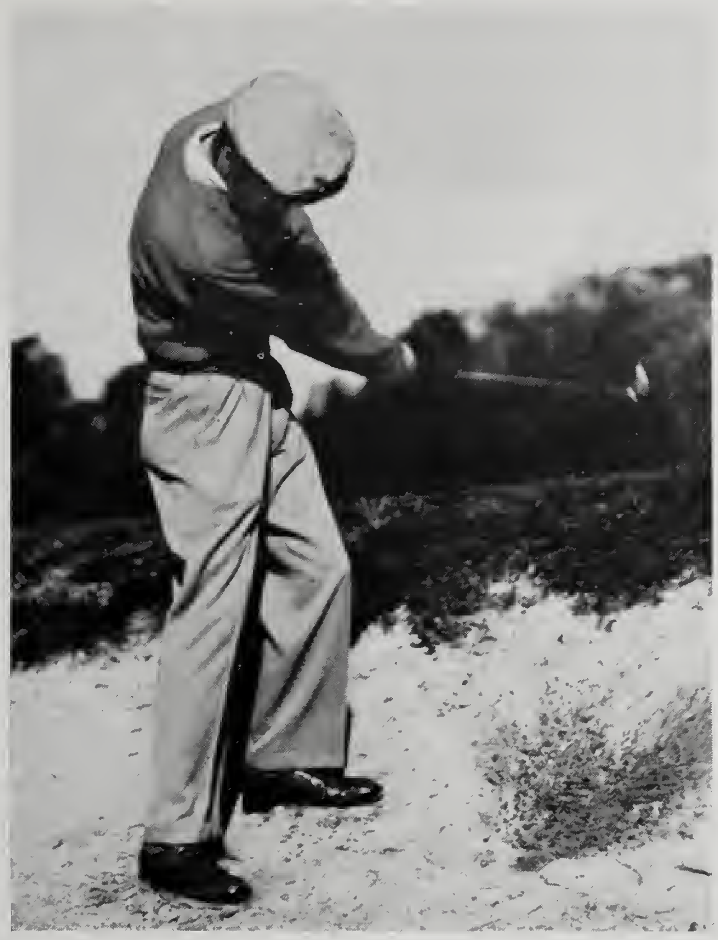
**Medical Department, United States Army: Surgery in World War II. Activities of Surgical Consultants, Volume II.** Colonel John Boyd Coates, Jr., M.C., Editor-in-Chief; B. Noland Carter, M.D., Editor for Activities of Surgical Consultants, and Elizabeth M. McFetridge, M.A., Associate Editor. Prepared and published under the direction of Lieutenant General Leonard D. Heaton. The Surgeon General, United States Army. Price, $8.50. Pp. 1062, with 365 illustrations. Washington 25, D. C.: Superintendent of Documents, U.S. Government Printing Office, 1964.

This is the second of 2 volumes on the activities of the surgical consultants in World War II in the series entitled "Surgery in World War II." This series is part of the volumes comprising the official history of the Medical Department of the United States Army in World War II, published under the direction of the Surgeon General, U. S. Army, with Colonel John Boyd Coates, Jr., M.C., U. S. A., as Editor-in-Chief.

This volume has to do with the experiences of surgical consultants in oversea theaters of operations, excluding field armies. The earlier volume published in 1962 dealt with the activities of the surgical consultants in the Zone of Interior and in U. S. field armies overseas.

The first part of this volume deals with the activities of surgical consultants in European Theater of Operations and the second part covers the Pacific and Asian Theaters. Two extremely interesting chapters are based on the diaries of Dr. Elliott C. Cutler, Chief Con-

(*Continued on page 18*)



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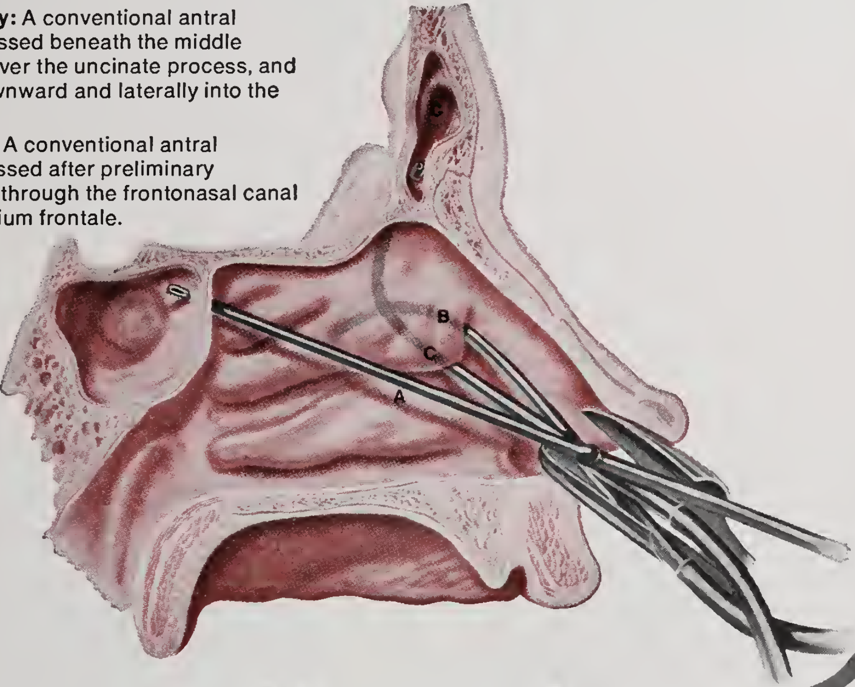

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*Reed, G. F.: Sinusitis, New England J. Med. 267:402, Aug. 23, 1962.

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## Book Reviews

(*Continued from page 14*)

sultant in Surgery, who served in Europe, and Dr. Ashley W. Oughterson, who served as a surgical consultant in the Pacific.

This volume will be of great interest to all of those who served in the Medical Department of the U. S. Army, to all interested in the history of the Medical Department of the U. S. Army, as well as to those who in the future will be concerned with the administrative responsibilities of the Medical Department of the U. S. Army.

HUGO V. RIZZOLI, M.D.

**Better Health for Women.** CHARLES RICHARD ALSOP GILBERT, M.D., F.A.C.S. Drawings by Phyllis Anderson. Price, $4.95. Pp. 365. Garden City, N. Y.: Doubleday, 1964.

Dr. Gilbert has uniquely presented and discussed some of the most important and intimate aspects of the female and her problems of health. Perhaps because of his background in internal medicine, general surgery, urology, and anesthesia, in addition to his obstetric and gynecologic experience, Dr. Gilbert has developed an unusual insight into the health problems of women.

This book presents in plain language the various facets of female development and complications and also includes a well organized glossary. The material is presented in a chronologically concise manner so that the reader needs no formal training to understand it. Every woman who reads this book will find a treasure of accurate knowledge about herself that will enable her to better understand her physiology and enable her to detect pathologic changes. This last statement has particular significance since early recognition of disease is directly proportional to its cure.

The question-and-answer section at the end of all chapters is especially useful and does a good job of eliminating a scientific air from the treatise by embodying many of the thoughts of women expressed in their own way.

This book could be very useful to a mother in explaining to her teenage daughter female anatomy and physiology and the problems of sex. In addition, the husband and the newly married will find in it a basis for better understanding.

R. A. DEANE, M.D.

**Venereal Diseases.** AMBROSE KING, T.D., M.B., B.S. (Lond.), F.R.C.S. (Eng.), AND CLAUDE NICOL, T.D., M.D., F.R.C.P. Price, $10.00. Pp. 301, with 165 illustrations. London: Cassell, 1964.

This volume on venereal disease has been written by a man who is probably recognized as the number one world authority on venereal disease, Mr. Ambrose King. He is a senior physician at the Whitechapel Clinic, London, England; a lecturer on venereal diseases, London Hospital Medical College; venereologist, Bethnal Green Hospital; adviser in venereal diseases to the Ministry of Health; member of the Expert Advisory Panel on Venereal Infection and Treponematoses, W.H.O.; honorable consultant venereologist to the Army; Past President and member of the Council of the Medical Society for the Study of Venereal Diseases; and President of the International Union Against the Venereal Diseases and the Treponematoses.

The book is up-to-date as of September, 1963. Mr. King has been and is engaging in what is probably the most pretentious coöperative research activity on venereal disease that is being carried out anywhere. His clinical experience has been most comprehensive. It would serve no purpose to go into any detailed account of the contents of this volume; sufficient to say that it is comprehensive, full of practical information, and represents the most current thinking in this field. This volume should really be in every practicing physician's library.

WILLIAM P. HERBST, M.D.

**Communicable and Infectious Diseases—diagnosis, prevention, treatment,** 5th ed. FRANKLIN H. TOP, A.B., M.D., M.P.H., F.A.C.P., F.A.A.P., F.A.P.H.A. Price, $21.00. Pp. 902, with 133 figures and 15 color plates. St. Louis: Mosby, 1964.

This book contains many excellent articles and each section includes excellent, authoritative references most valuable to the clinician seeing the occasional case.

There are some deficiencies present which could be easily corrected in a later edition. A less desirable feature is persistent use of black and white instead of color plates. Although there may not be color plates available in some of the rarer conditions, the contrast in several places of the 2 methods of reproduction amplifies these differences (deficiencies). Certainly the 15 color plates used are of the highest quality.

The arrangement by body systems, although somewhat confusing at first, does facilitate classification of infectious agents by the usual portal of entry. It is, however, disconcerting to find leprosy entirely contained under the heading "The Respiratory Tract" and in such varied company as diphtheria and Vincent's infection.

Several of the introductory chapters have not been updated, although Specific Prevention of Certain Communicable Diseases does include newer information on oral polio immunization, live attenuated measles, and inactivated measles vaccines.

The section on antibiotics is filled with valuable information with excellent tabular references and is the highlight of the book.

The chapters on management of communicable diseases in the hospital and home are well done, and although somewhat elementary for a book of this type will be valuable to any physician suddenly faced with the setting up of a "contagious ward" as the result of a local epidemic, either in hospital or in private homes.

This book is a valuable addition to the practicing physician's armamentarium.

HAROLD I. PASSES, M.D.

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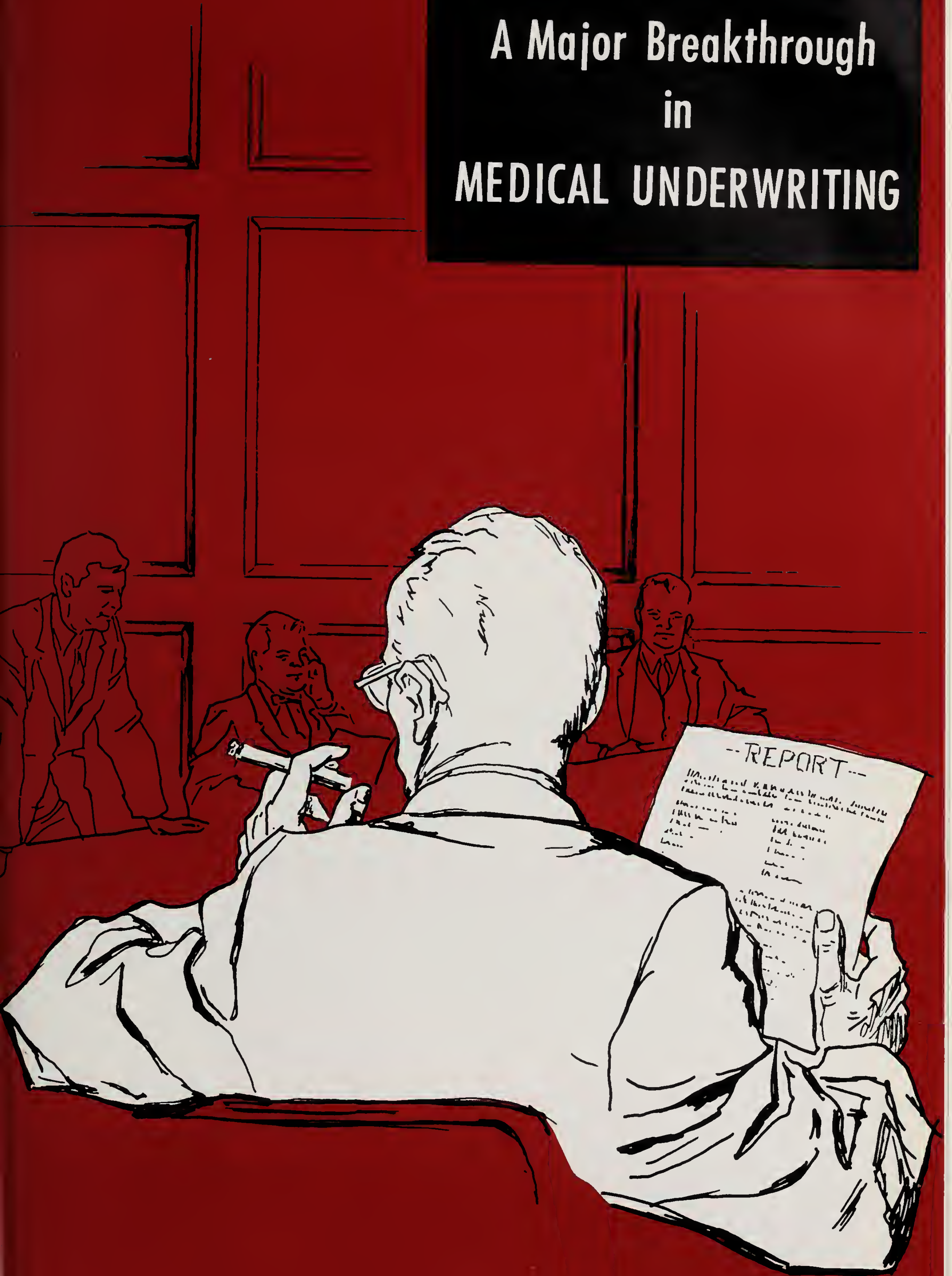

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*December 1964* VOLUME XXXIII • NUMBER 12

# The Humane Atom: Radioisotopes at the Service of Medicine*

GLENN T. SEABORG, Ph.D.
*Chairman, United States Atomic Energy Commission*

I AM HAPPY that I am able to talk about the good things nuclear energy has been able to do for mankind when so much of the public's interest has been focused in a fearful way on the more destructive aspects of the atom. We need to keep reminding ourselves that nuclear energy is making important contributions to a happier, more abundant, more healthful way of life—contributions which began long before the advent of the nuclear weapon. I want to deal especially with this point—how nuclear energy and, in particular, how radioisotopes, have contributed to our health as important tools in medical research, diagnosis, and treatment. Because developments in the medical use of radioisotopes have been so extensive—and intensive—in the past several years I will of necessity have to limit the scope of my remarks. I shall emphasize research and diagnosis and speak in a more limited way on the use of radioisotopes for the treatment of diseases.

I would like to specify another limitation also. Now and then I must explain to an airline hostess that I am not the kind of a doctor who can do anyone any good. I hope this audience of practicing physicians will be charitable with me as I discuss medical implications of radioisotopes and the techniques for their use. My sources, eminent specialists like Dr. John H. Lawrence of the Donner Laboratory of the University of California, come highly recommended, but as to my own qualifications I can only claim some not very recent experience as a cyclotron pharmacist. This experience goes back to the early years when artificially-produced radioisotopes were first becoming available.

At that time, in the mid-thirties, I was one of a group of young scientists working with the artificial radioactivities being produced by Ernest O. Lawrence's cyclotron. We were often called upon to produce new radioisotopes which our biological and medical colleagues could use as tracers in their explorations, and sometimes we had the very good fortune to supply exactly what was needed. One such fortunate incident occurred in 1938 when the late Dr. Joseph G. Hamilton mentioned to me that his studies of thyroid metabolism were being impeded by the short lifetime of the radioactive iodine tracer then available. He was working with iodine-128, an isotope with a half-life of only 25 minutes. When asked what half-life would be most suitable, he said, "Oh, about a week." Soon after that Jack Livingood and I synthesized and identified iodine-131 with a half-life, luckily enough, of 8 days. There were other fortunate and interesting incidents of this kind, one being the production of iron-59 with a 45-day half-life suitable for studies of hemoglobin formation. However, there is no need to dwell on these happy combinations of great opportunity and good luck; many years have passed since we ran our pioneer radioisotope prescription counter at Berkeley and a great many things have happened since then to bring the medical use of radioisotopes into well-deserved prominence.

Before we examine in some detail the more significant of these recent developments it may be well to refresh our memories as to what radioisotopes are and how they behave. They are, as you know, unstable isotopes of the elements, and they demonstrate their instability by decaying with the emission of radiation. They can therefore be used as tracers or as sources of radiation which affect or which are affected by other materials. Otherwise they behave exactly as do the stable isotopes of the same elements, a fact of strategic importance for the medical research man or diagnostician. Since radioisotopes decay by the emission of radiation they reveal their position and quantity to various kinds of detectors designed to ferret them out. They may be detected where they have lodged or have been scattered, and their careers may be followed as they form various molecular species or ions, participating in chemical or biological reactions. In short, they are pretty hard to lose if you have the right equipment to find them.

---

* Address made before the George Washington University Medical Alumni Association at its Annual Banquet in Washington, D.C., June 5, 1964.

Further degrees of versatility are added to this picture when we remember that radioisotope radiations occur in the form either of high-energy particles (alpha particles and beta rays) or of electromagnetic rays (gamma rays). The gamma rays are capable of deep penetration into matter; the beta rays are capable of intermediate penetration, and the alpha particles are limited to very shallow penetration. Significantly, for the purposes we are considering, liquids and solids, even those that are opaque to ordinary light, are, in varying degree, transparent to both beta and gamma rays.

By way of filling out the picture with respect to sources for radiations of this kind, I shall mention that such radiations can be produced also by a variety of machines. The Van de Graaff generator produces fast electrons and X-rays similar in their penetrating power to beta and gamma rays. In other machines, such as linear accelerators and synchrotrons, electrons and X-rays can be produced at much higher energies than those available as radioisotope beta and gamma rays; and protons, alpha particles, and heavier ions can be accelerated in these and other machines to much higher energies than are available from alpha radioactive elements. Taking the whole array of radioisotopes and radiation-producing machines, it is obvious that the present-day practitioner is blessed with an extensive gamut of energy levels in the various types of radiation.

How are the most available of these, the radioisotopes, being used today? We might begin with my old friend iodine-131 which over the years has become a real work horse. In the days when I was more closely connected with this field a small amount of cyclotron-produced radioactive iodine was administered to the subject and then a Geiger counter tube was held directly over the thyroid gland to detect the location of the iodine-131 and thereby measure thyroid iodine uptake. This was a very crude diagnostic effort compared to the things being done today.

Sophistication has come into this work with the development of the sensitive scintillation counters in the early 1950's and the later development of radioisotope scanners and cameras. This latter complex instrumentation enables us to visualize how radioactive substances have been distributed in the body. Thus it is possible to assess the size, shape, position, and function of organs and to locate lesions on them.

As you know, thyroid iodine uptake studies developed early because the thyroid is able to concentrate iodine and lies close to the surface of the skin. This was good from the detection standpoint and also allowed the earliest dot scanners to be used when they became available. Scans or scintiphotos of a normal thyroid gland after the patient has been given iodine-131 show an outline resembling a butterfly. Various thyroid deficiencies lead to abnormal patterns in the picture. Some of these conditions can then be treated with larger doses of the same radioisotope. Areas which fail to take up iodine and areas which take up excessive amounts of iodine can be found with a scanning device. Such records combined with your other diagnostic skills are most helpful in deciding what sort of disease is in the gland.

The use of iodine-131 for thyroid and other types of diagnosis, much to my satisfaction, has grown rapidly over the years. I am told that this artificial radioisotope is now served some half-million times a year as the "atomic cocktail" for tracing and controlling thyroid functions, not counting its tracing and labeling work in other applications. I have a still deeper feeling of gratification, however, in having been privileged to discover this medical radioisotope. My mother is among the many persons who have benefited from diagnosis and treatment with iodine-131.

Perhaps we should take a little closer look at some of the new instrumentation and techniques before considering other radioisotopes and their applications. Radioisotope scanners and cameras have become very versatile instruments indeed. As I have mentioned, the early dot scanner was most successful in thyroid studies because that organ lies close to the skin and scattering of radiation was minimized. Pulse-height selection and the use of focusing collimators in later scanners made it possible to apply scanning techniques to the deeper-lying organs. Also, with the development of the photoscanner, the mechanical tapper bar which had recorded counts from the scintillation counters by placing dots on a piece of paper was replaced by recording with light on photographic film.

Another valuable instrument is a somewhat different version of the gamma ray scanner known as the positron scanner. With the annihilation of a positron by a negative electron, 2 gamma rays of equal energy are released in exactly opposite directions, and scintillation counters counting in coincidence placed on opposite sides of the patient's body can detect a positron-emitting radioisotope and locate it on a straight line between them. A very clean picture is obtained with this scanner. The first scanner capable of scanning the whole body of a patient, in 40 minutes, was developed in 1952 by the Donner Laboratory and is still in use.

Equally interesting improvements have been made in recording on film with scanner cameras. Earlier types needed quite a bit of time to do their job because of the deliberate back and forth motion of the detector over the patient. Now there are scintillation cameras which operate from a fixed position and greatly reduce the time required for analyzing the isotope distribution and consequently the length of time the patient must be immobilized. With these faster cameras, the research man is able to follow the progress of radioisotopes into and out of the organs with the idea of obtaining information about disturbances in organ functions before gross pathologic changes have occurred. There have also been improvements to methods of displaying scanner data such as multicolor printout systems which show the radioisotope distribution in the form of color contour maps.

One of the most promising instruments to appear in recent years is the whole-body counter. It was used first in radiological health work, but it may also prove to be exceedingly useful in medical diagnosis and research. I will not attempt to describe the various types of counters. There are more than 70 whole-body counters in operation, and about 40 of these are in the United States. Their great potentialities can be appreciated from the fact that they can be used to study the body's built-in tracer, potassium-40, a naturally occurring gamma-ray and beta-ray emitter with a half-life of about a billion years. This radioisotope occurs in such trace amounts that its study awaited the advent of the whole-body counter. Since potassium is located largely in muscular tissue, it is now used in investigations of lean body mass and may help in the study of muscular dystrophy.

Since it is important to keep radiation exposure especially low in radioisotope studies on infants and small children, whole-body counters find an application in work on thyroid conditions in children. In Geiger counter days, 50 to 100 microcuries of iodine-131 was administered for a determination of thyroid uptake. Now the dosage can be as small as 0.1 microcurie.

However remarkable the development of radioisotope instrumentation, of even greater importance to mankind the world over has been the phenomenal increase in the availability of artificial radioisotopes. With the successful development of nuclear reactors it was possible after World War II to begin to realize the great potential of radioisotopes. Before the reactor, smaller quantities were created in cyclotron bombardment. Once the reactors began to operate, large quantities of hundreds of radioisotopes were produced and powerful new sources could be developed to extend the range of radiation therapy.

Chiefly because of the reactor, radioisotopes are no longer novel in biological research or in medical diagnosis and treatment. Over 2,000 hospitals and medical groups now make wide-ranging use of radioisotopes. Some 30 different radioisotopes are used in research, the most popular being an isotope of the most common element in biological systems, carbon-14. Over 30 have been used for diagnostic purposes, and some half-dozen are applied in treatment.

Large numbers of radioisotopes were discovered, and almost unlimited quantities of certain radioisotopes such as fission products are inherent by-products of an operating reactor, whatever its purpose. By the simple technique known as neutron activation many others can be made. Nevertheless, the old faithful cyclotron will continue to be with us as a radioisotope producer. It produces radioisotopes that the reactor cannot produce, and it produces certain other radioisotopes more efficiently than the reactor. But the great bulk of radioisotopes now comes from reactor operations.

It is worth remarking that the first shipment of radioisotopes from the nuclear energy project in August 1946 went to a cancer clinic in St. Louis, Missouri for private medical research. Since that time the Atomic Energy Commission has carried on major efforts on 4 fronts to advance the cause of nuclear medicine. It produces and distributes radioactive isotopes. It provides opportunities for medical personnel to receive training in the techniques of using radioisotopes safely and efficiently. It operates major research facilities in the medical field that require specialized equipment and staff not ordinarily found in existing medical centers. Finally, it supports promising research projects through contracts with medical schools, universities, hospitals, and other research organizations. Parenthetically, I should add that private business associated with radioisotope usage has increased so much that AEC facilities now mainly supply the bulk radioisotopes for further processing by industry into packaged radioactive pharmaceuticals.

I need not tell you how widely these abundant supplies of radioisotopes are being applied in present-day medical diagnosis and research. One of the obvious areas in which radioisotopes are bound to find use is in the study of metabolism with labeled compounds. Carbon-14 is used for studying many carbon compounds of metabolic interest, such as sugars, fats, and amino acids which are oxidized in the body to carbon dioxide. Breath analyzers provide a means of measuring deviations from normality and enable the researcher to gain an understanding of the metabolic processes underlying a number of diseases such as diabetes, acromegaly, gout, and anemias.

The carbon-14 breath analyzer has also been used to conduct research on the mechanism of action of certain hormones, as in recent studies indicating that parathyroid hormones modify citrate metabolism. The short-lived, 2-minute oxygen-15 radioisotope produced by cyclotron bombardment of nitrogen-14 has been useful in oxygen metabolism studies.

The list of applications is truly amazing. Recent reports of the Atomic Energy Commission on AEC's research in the life and physical sciences record such items as the use of radioactive gold-198 and sulphur-35 in gold thioglucose to locate appetite control centers in the brain. Metastable technetium-99 has been substituted for iodine-131 in thyroid scans and radiocardiograms in order to reduce the associated radiation dosage. There are numerous studies of blood utilizing radioactive iron-59 and radioactive iron-55, including the effect of sex hormones on red blood cell production, and studies of iron metabolism and iron absorption from the gastrointestinal tract. Also, through use of a combination of iron-59 and tritium the effects of altitude on the blood cell count and plasma are being investigated.

Interesting advances have been made in the understanding of the control of red blood cell production from research on the red blood cell stimulating hormone, erythropoietin. One technique utilizes the short-lived positron-emitting isotope iron-52 and the positron scintillation camera for visualizing the distribution of marrow in the body, comparing normal marrow distribution with the changes in this distribution accompanying certain diseases. In severe anemia, for example, it may be found that the red blood cell producing marrow has almost disappeared from the bone marrow leaving the spleen as the organ of blood cell production.

Organ function studies have been greatly assisted by radioisotope diagnosis. Because they could be measured more easily and accurately, radioactive isotopes have replaced dye as a tracer in determining cardiac output. Huff and his colleagues demonstrated in 1955 a technique whereby cardiac output could be measured externally with a scintillation probe placed over the heart, thus obviating the need for an indwelling arterial needle or catheter.

Kidney circulation was for some time analyzed with the aid of iodine-131-Hippuran and probes placed over each kidney in a method developed by Taplin and associates at the University of California at Los Angeles in 1956. More recently mercury-197-Neohydrin® has been used for this purpose. By the use of similar methods iodine-131-labeled rose bengal was employed to make hepatograms for displaying location, contour, and defects within the mass of the liver. Iodine-131-labeled rose bengal has now been replaced in this use by iodine-131-labeled human serum albumin (RISA) especially prepared as a colloid.

Studies of the brain by radioisotope techniques present greater difficulty than the study of an organ such as the thyroid which actively concentrates the isotope. However, by the use of iodine-131-labeled human serum albumin (RISA) and later mercury-197-labeled Neohydrin it has been possible to locate tumor tissue in the brain.

Even on the basis of this brief survey of radioisotope applications I believe we can recognize many gains to medicine in the present use of radioisotopes for both diagnosis and research. Already a wide variety of these new artificial substances enables us to place innumerable submicroscopic windows (and moving windows at that) in the body through which we may observe conditions in the circulatory system, the skeleton, and the body's major organs. Moreover, we are able to do this with a very minimum of disturbance to the body itself and the conditions to be studied. For example, by a liver study with colloidal RISA, it can be demonstrated that an artifically created bile duct is still functioning, thus avoiding an unnecessary additional operation. Or by use of a whole body scanner when a liver lesion is suspected it may be possible to guide the placement of a biopsy needle without major exploratory surgery.

I have already mentioned the whole body counters sensitive enough for use in studying the natural levels of radioactivity within the body. I would only add that in the realm of the ultrasensitive there are now 3 additional methods—neutron activation analysis, optical emission spectroscopy, and X-ray fluorescence—which enable us to detect and measure trace elements such as iodine, manganese, cobalt and gold, and which may eventually help us to understand the very important role these minute quantities of elements perform in the normal functioning of the body. With one of the methods, neutron activation analysis, it has been possible to detect elements such as iodine and gold in parts per billion or less.

I will conclude by sketching a few ways in which radioisotopes have proved to be important additions to older methods for the treatment of disease. You are aware, of course, that the conventional X-ray tube yields a spectrum of photon energies, including some which cannot penetrate to destroy deep-seated cancer. This undesirable low-energy component is absorbed in overlying healthy tissues, where it can cause painful radiation damage. The uniform high-energy radiation of cobalt-60 reduces these effects so that relatively higher therapeutic doses of radiation can be delivered to deep-seated lesions while imparting relatively lower doses to the skin and intervening tissues. These advantages have, of course, been conclusively demonstrated with many patients. My good friend, Dr. Henry Jaffe, and his co-workers, at the Cedars of Lebanon Hospital in Los Angeles, worked on the development of the rotational cobalt-60 therapy technique. This technique, whereby the patient or source is rotated to distribute and hence limit the radiation damage to overlying tissues, has obvious advantages.

Another therapeutic application of radioisotopes has been the use of phosphorus-32-tagged colloidal chromic phosphate for treating metastasized cancer in body cavities. Phosphorus-32 emits no gamma radiation, as does gold-198, and so there is a lower radiation damage to both doctor and patient.

The producers of radioisotopes are continually challenged by the restless imagination and ingenuity of medical researchers in their demands for new or infrequently used radioisotopes. Not long ago, for example, iodine-125 was made available in quantity, and this radioisotope, which emits soft gamma rays and X-rays, has been especially useful in diagnosing thyroid conditions in children. Researchers have also recently demonstrated that this soft radiation, like that from medical X-ray machines, is useful for taking X-ray films of the body. The low energy of the radioisotope radiations makes possible light weight but effective shielding. Some day perhaps tiny portable sources of this and other similar radioisotopes such as promethium-147 and thulium-170 will find their place in the doctor's black bag. Already portable promethium-147 units have been developed about the size of a student's dissecting microscope, and we can visualize that such equipment may have extensive application in the developing nations and in time of war or disaster. They have the immense advantage of being operable in the absence of any electric power.

Looking toward broader, and perhaps more distant, horizons I find myself contemplating a radically new era in the life sciences and consequently in medicine. It too will be an era in the development of which artificial radioisotopes in their ubiquitous function as labelers and tracers have played a fundamental, indeed an indispensable, role. I have reference to the exciting new discoveries connected with giant DNA molecules and the deciphering of the genetic code. These discoveries indicate that we may find in the constitution of the gene or virus the clue to the means by which all life's diverse forms are constructed and controlled. Compared with this achievement, the cryptography involved in reading the Rosetta Stone must come to seem little more than puzzling out a letter from a distant friend. As we look toward the benefits to mankind that can be expected through the medical progress of this bright future, we see that radioisotopes are not only exemplars of the humane atom but may prove to be the means by which man ultimately achieves his fullest measure of humanity.

# The Navy Tissue Bank—Past and Present*

**LT. COMMANDER MICHAEL F. DOLAN, MC, USN**

*Tissue Bank Department, United States Naval Medical School, Bethesda, Maryland*

THE TISSUE BANK of the U. S. Naval Medical School at the National Naval Medical Center in Bethesda, Maryland has been in existence since the Korean conflict. It was the fruition of an idea conceived by Dr. George W. Hyatt (now Professor and Chairman of Orthopedic Surgery at Georgetown University) who organized the Bank primarily to procure, process and store tissues for orthopedic and reconstructive surgery on the casualties from that conflict. The passage of time has witnessed the evolution of the Bank from the original 1-room laboratory containing a small freeze-drying unit to its present suite of rooms and laboratories occupying 1½ floors of the South Wing of Building No. 1, National Naval Medical Center (figure 1).

The Tissue Bank Department of the U. S. Naval Medical School is divided into several divisions: the Bank itself with its operating-room facilities, storage facilities, and case registry; the tissue chemistry division which serves as a quality control laboratory as well as a laboratory conducting research relevant to the purpose of the Bank; an immunology division whose primary function is elaboration and elucidation of the homograft reaction; and the tissue culture division concerned with the development and assay of methods of viable tissue storage.

At present the tissues that we bank and some of their uses are split thickness skin, primarily used for covering burn patients; fascia, used quite extensively in Lowman procedures; dura, used for closure of meningeal defects; cortical bone, used as onlay grafts in fracture repair or spinal fusion; ground cancellous bone, used as a filler in curetted bone cysts; rib matchsticks, used as supplemental filling in back fusions; and cartilage, used in plastic and dental reconstructions. At one time arteries were banked routinely, but because of innovations in the synthetic polymer field the Bank now receives very few requests for blood vessels. For this reason vessels are obtained and processed only at the specific request of a collaborator. We do not store eyes but occasionally procure eyes for the Washington Eye Bank when a request is made.

The tissues are prepared by a process of freeze-drying and are capable of prolonged storage at room temperature without significant changes with regards to their clinical performance. The subjugation of tissues to this lyophilization procedure precludes viability so that when they are suitably reconstituted with physiologic saline they can only serve as biologically acceptable materials apparently incapable of initiating a homograft response[1] but capable of providing protection or support.[2]

Principal interest in the past was directed toward the production of a standardized clinically utilizable and useful product, and through the efforts of previous directors this goal has been realized.[3-6] The present orientation is more toward basic and applied research with the ultimate goal of augmenting, and in some cases completely replacing currently available banked tissues with more economical and readily available synthetic substitutes which may be equally or better able to accomplish particular jobs and developing techniques for viable tissue storage.[7, 8] It is thought that synthetic materials or anorganic heterograft material[9] will eventually replace a considerable number and possibly all of the different types of deposits of presently available lyophilized human material. Until this possibility is completely realized, however, we are continuing to explore new applications for the presently available product as well as evaluating the need for, and technical difficulties associated with the procurement and processing of new preparations. Indeed, this past year has witnessed the formulation of a collaborative study to test the effectiveness of processed iliac dowels in anterior spinal fusions. It has also seen the utilization of whole lyophilized fibulae in the replacement of "pencil thin" tibiae in an arrested case of osteogenesis

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imperfecta, the results of which are not presently available. Indeed, lyophilization and vacuum packing have proved to be a most satisfactory method of processing canine tendons,[10] and a collaborative effort is being made to evaluate the performance of human tendons similarly processed. The clinical utility of a segment of lyophilized distal femur with attached articular cartilage as a half-joint preparation is currently being explored by one of our collaborators[11] in a case in which the corresponding autogenous material had to be removed because of involvement by a giant-cell tumor. In this instance we are given some reason for optimism by the reports that the patient, 7 weeks post-surgery, exhibits 70° flexion in that joint and is capable of straight-leg lifting exercise. The graft itself demonstrates punctate areas of translucency consistent with revascularization. We are well aware of previous studies on this matter[12] and those which have shown that there is a transient "take" period of several months' duration, after which time the graft finally sloughs.[13] We are also aware of serious reservations expressed by some[14] on the matter of transplanting joints or half-joints to weight-bearing positions. Nevertheless, the value of lyophilized material for joint reconstruction with the concomitant preclusion of sufficient residual antigenic material to initiate a homograft response has never been ascertained as far as I know and may well perform considerably better than those used, either fresh or stored at $-20°C$.[12, 13]

There are several areas of basic as well as applied research currently being explored in our laboratories. Foremost among these are studies aimed at elucidating the biochemical and functional alterations attendant upon freezing cells and whole organs, with the idea of developing techniques for the prolonged storage of tissues in a state that will permit them to retain complete functional capacity over prolonged storage. Obviously, freezing is not the only means of preserving material; indeed, it may ultimately prove to be inferior to some other techniques, but we are exploring the potential applicability of this method for 2 reasons: (1) Our experience has been in the field of freezing and our laboratories are geared to perform pertinent studies in this area, and (2) there is evidence available from nature that organisms can tolerate freezing and even subsequent drying (e.g., bacteria, fungi, etc.), rendering them capable of prolonged storage; several animals as well as isolated mammalian organs can withstand extreme degrees of hypothermia during which time metabolic activity is temporarily suspended or considerably depressed. Quite recently it has been shown[15] that unprotected* rat kidney can be frozen and thawed without loss of function to the extent that the cold-exposed kidney alone can maintain a unilaterally nephrectomized animal indefinitely with insignificantly elevated BUN values as the only residuum. I think that these studies establish at least one fact, viz., that the physiologic and biochemical insult mediated through the freeze-thaw cycle is not necessarily incompatible with the retention of viability and functional integrity in mammalian organs so exposed. However, when we attempt to repeat these and similar studies in dogs the best results that have been reported to date are restoration of normal function after taking the kidney down to a temperature of $-6°C$.[16, 17] Attempts to lower this temperature have been unsuccessful in our hands to date although some recent evidence[18] indicates that this feat may well be possible. It appears at present that this problem may be resolvable only with recourse to the knowledge of the cryogenic engineers since the resolution of the problem of rapid heat exchange in a mass of tissue of such size as the kidney may well be the elusive key to the matter of viable organ storage.

**FIG. 1. Tissue Bank and Blood Donor Center of the U. S. Naval Medical School presently located in South Wing of Building No. 1 at the National Naval Medical Center. Official U. S. Navy photograph.**

The perfection of a method of viably storing tissues and organs, however, would be of only limited significance in the face of the homograft response. Consequently a good deal of our time and effort goes into attempts at more careful definition of the mechanisms of homograft reaction in order to lessen its significance to plastic and transplantation surgery. Exploration in this area is focused on the detailed histochemistry of the reaction and the incubation of grafts with selected metabolites in an effort to render the graft less antigenic to the host.[19] In more elaborate terms, we are seeking to render the graft's phenotype more compatible with that of the host. Our expectation is not that gene changes will necessarily occur from our treatment but that by sufficiently altering the phenotype a state of permanent tolerance may be achieved through adaptation.

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* Not previously exposed to chemical agents known to afford some protection to cells against cold injury, e.g., dimethyl sulfoxide (DMSO), polyvinylpyrrolidone (PVP), glycerol, etc.

The other area of major interest is radiation protection. The Tissue Culture Division has developed a system for short-term (up to 10 days) viable storage of human bone marrow[20]; utilization of this material in clinical cases shows that the protective properties of autologous bone marrow have not been lost during storage. Prolonged frozen (1 year) storage of autologous canine bone marrow has also been shown in our laboratories to effect survival with almost the same efficiency as fresh preparations. More recently considerable attention is being given to the finding[21] that pooled homologous peripheral white blood cells from guinea pigs prepared by a modification of the fibrinogen flotation method of Skoog[22] can significantly decrease the mortality statistics in lethally irradiated animals. These studies employed fresh as well as frozen and stored-cell populations. In the guinea-pig system no evidence of runting syndrome has become evident after 6 months post-infusion.[23] Studies of a similar nature are now being carried out on dogs in an attempt to successfully negotiate the phylogenetic pathway leading to man. Although these studies comprise our main pursuits, selected pilot studies are constantly opening new avenues and closing others so that major efforts will continue to be directed along the most promising roads.

In an attempt to summarize the aspirations of the Navy Tissue Bank, I will relate the following story.

When an official of the Massachusetts General Hospital was asked whether the operation to successfully reanastomose an essentially completely severed limb was a unique accomplishment the reply was that the priority would have to go to the Arabian physician-brothers Cosmas and Damian.[24] The reference, of course, was to the legend of the "Vision of the Black Leg" which has been perpetuated through the centuries and graphically portrayed in several hundred paintings going back to the fourteenth century. It tells of the removal of a cancerous leg from an otherwise healthy Caucasian by the physician-brothers and its replacement with a functional leg which had been removed from a Moor buried that same day. It is the realization of the biological implications of this legend and the capability of transplanting bone marrow, kidney, skin, spinal cord, etc., which truly reflects the hopes of those of us in the field of tissue banking. Indeed, this legend and all that it implies might be cited as the reference for our motto "*Ex Morte Vita*"—"from death, life."

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# School Health

**VICTOR L. ASSEVERO, M.D.**

*Clinical Instructor in Pediatrics, Howard University College of Medicine*

THERE IS, it seems to me, a major area of child care that pediatricians and Government for lack of proper understanding are relatively neglecting. I refer to school health. It is true that in most cities and towns there is some attempt through various agencies to provide some services under a School Health Program, but a casual view will show not only that these services are inadequate but that the value of the resource (our children) being protected is not fully appreciated.

The purpose of this paper is to take a critical look at a school program and to suggest some corrective or supplemental measures.

### Program in the District of Columbia Schools

The health and well-being of the children in the schools of the District of Columbia are the joint responsibility of the Department of Public Health and the District of Columbia schools.[1]

Medical, mental health, nursing, and dental services are included in the School Health Program. Medical services are furnished by the School Health Services Division of the Bureau of Maternal and Child Health; the Bureau of Mental Health provides mental health diagnostic and treatment services; the Bureau of Public Health Nursing furnishes nursing services in the elementary schools; and the Bureau of Dental Health supplies dental health services.

Other Bureaus and Divisions of the Department provide more limited services to the schools. The Public Health Education Section serves as a resource for health education materials as well as providing speakers and films on special health subjects when requested; the Bureau of Disease Control participates in the Tuberculosis Control Program; the Bureau of Environmental Health inspects schools when requested; and the Health Examining Service provides medical examination of applicants for positions in the schools and for teacher retirement.

The health services provided in the schools by the Department of Public Health are basically preventive and case-finding services: to immunize and control communicable diseases, screening services to find deviations from normal health that need correction, and information to parents in order that they may arrange for follow-up care with their own physician or dentist or in clinical facilities in the community. The Department also has diagnostic and treatment clinics to which children in need of further medical attention may be referred.

The school physician is the doctor (usually a pediatrician or general practitioner) who actually furnishes medical supervision to the children at school. He works with a nurse provided by the Bureau of Public Health Nursing. He spends a school session (morning or afternoon) per week per school and is usually employed on a fee-for-services basis.

### Work of School Physician

The school physician in a limited sense is responsible for the health of children in his school. He is in a logistically good position to observe certain problems at their inception because children entering school for the first time must be viewed as organisms in a new environment.

The work of the school doctor of necessity is somewhat systematized. He sees children usually in this order:

1. All problems referred to him by the teacher. These include such things as contagious diseases, traumatic lesions, suspected tinea and lice infestations, and complaints by children of pain or discomfort for whatever reason.

2. Routine physical examination of children new to the school system who do not elect a private physician. He usually begins with the kindergarten class. Parents are encouraged to be present during these examinations.

3. Behavior problems and slow learners.

4. Conference with teachers when necessary, which is usually the case especially for number 3 above.

### Experience in School

Experience in the school system has shown that dental caries is the most common health problem.[2] The problem is important though it is one associated with very little morbidity. The various free immunizations programs for infants and children have removed the serious infectious diseases as a major school health problem. Skin infections including ringworm are very well handled with modern methods of screening and antibiotic therapy, but little progress is being made in control of scalp ringworm even with the newer drugs. Upper respiratory infections are still a very bothersome problem in terms of morbidity and loss of school days. Serious observable congenital abnormalities whether due to heredity or birth injury by their very nature are important but should create very little problem for the school system as a whole. For this group health schools for the trainable should be provided. Home care and teaching may be necessary for some few, while for others institutional care will be necessary. In the District the Sharpe Health School, the Department's Crippled Children's Service, and the D. C. Society for Crippled Children provide services for this group.

The most serious problems in the school system today are behavior problems.[3, 4] It matters not whether they result from hereditary, congenital, environmental or socioeconomic factors; the fact remains that they are actually and potentially very serious. The reason is obvious of course when one considers that one such child can and many times does disrupt the functioning of his entire school. Even when problem behavior is not that severe one must imagine that the time demanded by such a child from his teacher robs the vast majority of his classmates and frustrates the most conscientious of teachers.

Children with behavior problems can be broken down into 2 large groups: (1) those for whom organic reasons can be found for their behavior, and (2) those with no organic reasons or more specifically none capable of being diagnosed by presently available methods.

Most behavior problems are handled in the school proper. Many are handled by the teacher alone and some by the teacher with advice from the school physician, who also confers with the parents. Considerable needed information can be passed on to parents at these times. The majority with organic defects are referred to special clinics by the school physician, and it is a heartening experience to cure a severe behavior problem by providing glasses or a hearing-aid. Unfortunately, most of those referred with organic brain damage of a nature not easily diagnosed and for which the only obvious evidence of damage is deviant behavior will be returned with advice for proper placements. This group, then, as well as those of group 2 above are candidates for Pupil Appraisal and Placement. In addition, the slow-learning group must also be sent for individual study and placement because improper placement of these children usually results in frustration and improper behavior. This quite large group are the children on whom more attention should be focused.[3, 5] These are the most neglected children in our school system and community. Now why is this so? The why is not easily answered, but the following are some reasons which may be significant.

## Causative Factors

*Family.* The majority of these families are in the lower socioeconomic group. They are large with many fathers for their children but with no resident male in the house. The grandmother, who is relatively young, is the bread-winner or more likely the disburser of public assistance allowances. These are the families from which we get our teen-age pregnancies to perpetuate the system.[6] There is no reading or music in these homes or any operating motivational force to achieve. The adults who should be offering these have never matured. They are forced-ripened fruit destined to produce many a bad fruit. These are families who have never regaled in the joy of raising children. They are frustrated families cut off from goals (albeit imaginable or fanciful) which they have not been able to attain because of children which they never have wanted in the first place. These are the appropriately named culture-deprived families.

*School.* The school tries to cope with this problem by dividing children into groups so that the minimum of frustration should exist while a healthy challenging atmosphere is maintained. There are 7 first grades in 1 school each with 34 to 40 children. The first group is the most adaptive and the last group the least. In addition, there are basic classes in which an attempt is made to educate the very slow learners and pupils with behavior problems. The idea of grouping is rational, but these classes are all overcrowded and in truth very little is accomplished.

Teacher attitude in this group is of utmost importance. I have found very few teachers with a true understanding of the basic problem. They are for the most part annoyed at "parents" who seem to disregard the most elementary tenets of child-rearing. They see kindergarten children coming to school unwashed and many times unfed.

They tell you quite frankly that they want to teach; that they love their profession; and that they could do a good job if only they can be rid of a few trouble-makers—the same children who made trouble for their mothers at conception.

*Medicine.* The attitude of the medical personnel on this matter is generally not commendable. They too feel that they are doing a good job when they provide a diagnosis and broad recommendations, not caring to know whether these recommendations can be carried out. After all, they argue, we are not sociologists, administrators or politicians. They too rid themselves of these children.

*Community.* The community is not totally unaware of this problem, but one must admit that the level of awareness until quite recently has been very low indeed. Schools are improperly conceived and planned. One of the most glaring examples to me is the number of almost totally glass-enclosed buildings recently built despite our experience of the high breakage rate from vandalism. Many of these classrooms are rendered useless from the first day of winter.

The shortage of classrooms and the need for more and better teachers have been mentioned by many before,[7] but we accept this knowledge with a fatality which it does not merit. The provision of more school rooms and more and better teachers, I submit, is not half as difficult as putting a man in space.

Finally, the community is mentioned as though it were some distant malevolent father, and in the same vein too we talk about the "budget not allowing" as though the money was somebody else's. For the 1963–64 year Congress approved for the D. C. schools $63,860,593.[8] This was approximately 6 million dollars short of the original request. Yet the final Public School Report on statistics for the fall of 1963 issued by the U.S. Department of Health, Education, and Welfare shows that;

1. 83,200 full-time classroom teachers or 5.3 per cent of all teachers did not meet state certification requirements.

2. 35 states and the District of Columbia recorded 409,000 pupils attending school for less than a normal school day.

3. 4.1 per cent or 1,659,000 pupils were in excess of the normal capacity of schools.

4. 124,300 classrooms were needed as of the fall of 1963.

We are the community and we control the money and we can protect our country's resources (the major item of which is our children) if we want to. The main point of action is that professionals in the field of child care, education and development must be more demanding of politicians in seeing the furtherance of their recommendations.

## Discussion

I have tried to outline the organization of a School Health Program and to show the work of the school physician. I hope I have pointed out the factors influencing problem behavior and have shown the need for a deeper awareness and community involvement in this metastasizing problem. I think the inference for a joint attack by all professionals in this field has been implied. I feel that above all else we must make Government realize that attack in any one area or in all areas in a sequential pattern is doomed to failure. Attack should be adequate, simultaneous, and on all fronts. We must provide employment and better housing while working on education and health. We must realize the need to provide immediately more specialized classes with teachers who specialize in love and understanding of these children.

I have not mentioned factors like race and color because they are not inherently relative. In the District of Columbia and in fact throughout the country the reason why certain groups form the bulk of the school behavior problems, are poorly housed, unemployed, and relatively disenfranchised is too well known and not at issue here.

I hope that I have shown that the great advances made in the management of infectious diseases have made it mandatory that physicians caring for children be more conversant with the sociopolitical aspects of child care.

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# Carcinoma of the Thyroid Gland*†

**COMMANDER JAMES J. HUMES, MC, USN**

*Director of Laboratories, United States Naval Medical School, Bethesda, Maryland*

**CAPTAIN DAVID P. OSBORNE, MC, USN**

*Chief, Department of Surgery, United States Naval Hospital, Bethesda, Maryland*

IN MOST MILITARY HOSPITALS the proposed therapy for patients with significant malignant tumors is discussed at a tumor board or tumor conference. Here, experienced members of the hospital staff, representing the various clinical services most frequently involved in the diagnosis and treatment of malignant disease, meet in consultation with the physicians directly responsible for the management of the individual patient and in the presence of interested members of the hospital staff. The tumor board usually includes the chiefs of surgery, medicine, radiology, obstetrics and gynecology, and pathology.

These conferences produce many interesting and often lively discussions. Since there are relatively few types of malignant disease for which there is only one universally accepted form of therapy, for most cases several alternate methods or combinations of methods are often proposed. The individual proponent of each suggested treatment will frequently quote statistics from the literature or from his own experience or that of other experts in the field, attesting to the efficacy of the method or methods he advocates. Quite often this type of testimony produces information of relatively equal weight to support conclusions which are almost diametrically opposed.

In our experience the discussions thus generated in the field of carcinoma of the thyroid gland have been perhaps the most frequent and heated. The literature on this subject is voluminous and in many ways contradictory. However, most articles deal with the experience of one individual or detail the results achieved by some particular form of treatment advocated by the responsible people of the reporting institution.

It occurred to us that it would be of value to record our experience at the Naval Medical Center over the past several years with these tumors. The series reported here covers a rather heterogeneous group of cases treated by many different physicians in a rather wide variety of ways over the past 20 years.

The information is presented in graphic or tabular form and is, in most instances, self-explanatory. Since the total series of 106 cases and those available for follow-up of 76 are small, we do not believe that very positive conclusions can be drawn. We do believe, however, that from a series of this size some trends can be observed and certain generalizations can reasonably be made.

In every case in this series surgery has been performed and the material is available for study. Not all of the surgery has been performed at the Naval Medical Center, but in each case the patients have been seen and examined here and the histologic material reviewed.

### Incidence

Figure 1 illustrates the age and sex distribution for the 91 cases in which this information is available. It will be noted that the male/female ratio in this series is approximately 4 to 5. This is at some variance with other series from this country,[1, 2] which report the male/female ratio at from 1 to 4 to 1 to 6, and probably reflects bias due to the predominantly male patient population. However, in a series from England[3] the male/female ratio is listed 2.4 to 1. It will also be noted that the mean age of our patients is approximately 15 years younger than most others report,[4] again probably due to the relatively youthful military population.

### Follow-up

Table 1 presents a breakdown of the cases

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* This paper was prepared for the National Naval Medical Center Number (October) of the MEDICAL ANNALS, but because of lack of space in that issue it is included here.

† The opinions or assertions contained herein are the private ones of the authors and are not to be construed as official or reflecting the views of the Navy Department or the Naval Service at large.

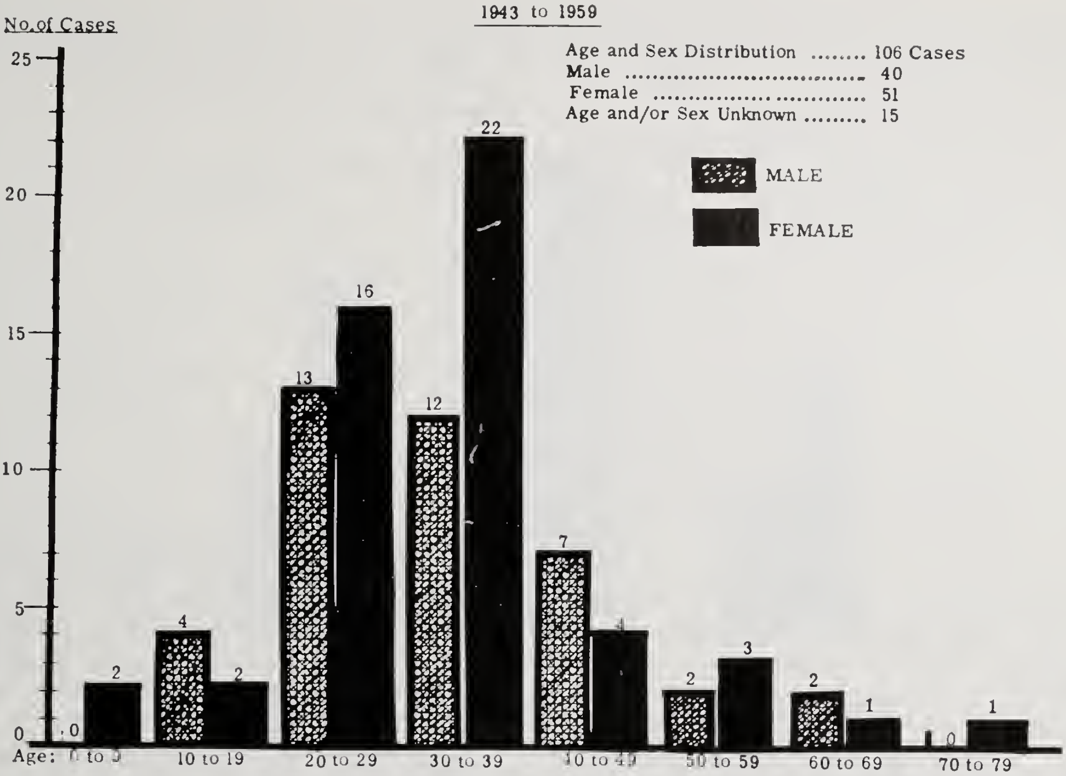

FIG. 1. Thyroid carcinoma—age and sex distribution.

indicating the current status of the patients and noting that 30 were lost to follow-up. This disturbingly large figure is indicative of the transient nature of the military population. In most instances in which the service number of the patient or of the principal when the patient was a dependent was available follow-up was possible.

TABLE 1: Overall Summary of 106 Cases

| | | |
|---|---|---|
| Total Cases Reviewed | | 106 |
| Lost to follow-up | | 30 |
| Remaining cases | | 76 |
| Deceased | | |
| Of recurrent or metastatic disease | 5 or 6.5 per cent | |
| Of surgical complications | 3 | |
| | 8 or 10.5 per cent | |
| Of unrelated causes | 3 | |
| Cause unknown | 2 | |
| | 5 or 6.5 per cent | |
| Total deceased | | 13 |
| Surviving | | 63 |
| With disease | 4 or 5.3 per cent | |
| Living and well | 59 | |
| Surviving free of disease | 77.6 per cent | |

## Surgical Mortality

Table 2 details pertinent information with regard to the surgical mortality. Although detailed follow-up information is lacking for 30 of the 106 cases, it is known that the 3 listed cases represent the only operative mortalities for an overall operative mortality rate of 2.8 per cent. It will be noted that all of the operative deaths occurred 10 or more years ago. During the period when these operative deaths occurred the standard radical neck dissection included removal of the internal jugular vein. Two of these deaths occurred shortly after the second stage of a radical neck dissection, the third following a unilateral radical neck dissection. One of these deaths occurred in this hospital, the other 2 elsewhere. Autopsy records are available for 2 of these cases which attribute death to massive

TABLE 2: Surgical Mortality

| Age | Sex | Date | Cell Type | Extent at Diagnosis | Survival Postoperative |
|---|---|---|---|---|---|
| 23 | M | 1943 | Papillary | Thyroid + nodes | "Shortly" |
| 26 | M | 1946 | Papillary and follicular | Thyroid + nodes | 50 minutes |
| 51 | F | 1954 | Papillary | Thyroid + nodes | 4½ hours |

mediastinal emphysema with atelectasis in 1 and probable cerebral vascular complications in the other.

### Deaths Due to Unrelated Causes

Three of the patients in this series died of causes unrelated to their thyroid tumor, as listed in table 3. It is of some interest that in each of the patients who survived 6 to 7 years, the malignancy was limited to the thyroid gland at the time of initial treatment. One of these patients died of a massive myocardial infarction, the other 2 of malignant tumors of unrelated organs. Autopsy reports are available for each of these cases and indicate no evidence of residual or recurrent thyroid carcinoma.

**TABLE 3: Deaths Due to Unrelated Causes**

| Age | Sex | Cell Type | Extent at Diagnosis | Survival | Cause of Death |
|---|---|---|---|---|---|
| 33 | M | Sclerosing | Thyroid | 6 years | Myocardial infarct |
| 65 | M | Papillary carcinoma | Thyroid | 7 years | Carcinoma prostate |
| 40 | F | Follicular and solid | Thyroid | 7 years | Carcinoma stomach |

### Deaths Due to Thyroid Carcinoma

Five patients in this series have succumbed due to their thyroid carcinoma, as listed in table 4. It will be noted that the age at onset varied from 21 to 66 years, with death occurring from 2 to 9 years after initial diagnosis. In 2 of these cases the disease was confined to the thyroid gland at the time of initial treatment, while in the other 3 lymph-node metastases were present. We were interested to note that of the total of 4 patients with Hürthle cell carcinoma in this series 2 have died of the disease and 2 succumbed to pure papillary carcinomas.

**TABLE 4: Summary of Fatal Cases**

| Age | Sex | Cell Type | Extent at Diagnosis | Survival Post-diagnosis |
|---|---|---|---|---|
| 21 | M | Undifferentiated | Thyroid + nodes | 2 years |
| 49 | M | Hürthle cell | Thyroid + nodes | 7 years |
| 69 | M | Hürthle cell | Thyroid | 2 years |
| 52 | F | Papillary | Thyroid | 8 years |
| 66 | F | Papillary | Thyroid + nodes | 9 years |

### Patients Living with Disease

Four patients in this series are known to be living with definite evidence of metastatic disease. Pertinent information with regard to these patients is shown in table 5. In this group those surviving 15 and 12 years following initial therapy are of particular interest.

**TABLE 5: Summary of Patients Living with Disease**

| Age | Sex | Cell Type | Extent at Diagnosis | Survival Post-diagnosis |
|---|---|---|---|---|
| 14 | M | Papillary and solid | Thyroid-nodes | 15 years |
| 19 | M | Papillary | Thyroid-nodes | 5 years |
| 27 | M | Papillary and follicular | Thyroid-nodes | 12 years |
| 21 | F | Papillary | Thyroid | 7 years |

The 14-year-old male had a total thyroidectomy with left radical neck dissection as primary treatment for a mixed papillary and solid adenocarcinoma with cervical metastases. Within 1 year he had developed extensive pulmonary metastases for which he has received several courses of radioactive iodine therapy.

The 27-year-old man came in with a mass in the left lobe of the thyroid with left cervical and supraclavicular metastases. Initial treatment consisted of a left lobectomy and left radical neck dissection. Two years later the right lobe of the thyroid was removed with a right radical neck dissection for recurrent disease. Since that time the patient has had further cervical recurrences, has been treated with radioactive iodine, and is currently hospitalized elsewhere.

### Patients Living and Apparently Well

Pertinent information with regard to the 59 patients surviving thyroid carcinoma and apparently free of disease is presented in table 6 and figure 2. It can be noted that this group represents a wide variety of histologic patterns among the lesions and that it includes patients treated by 4 different surgical approaches. This group has been followed from 4 to 16 years and includes patients whose age at the time of diag-

**TABLE 6: Summary of Patients Living and Well**

| Cell Types of 59 Patients Living and Well | | Surgery at Original Diagnosis (59 Survived) | |
|---|---|---|---|
| Mixed | 26 | Partial thyroidectomy | 33 |
| Papillary | 21 | Partial thyroidectomy with neck dissection | 18 |
| Follicular | 8 | Partial thyroidectomy with adjacent nodes | 4 |
| Undifferentiated | 2 | "Total" thyroidectomy | 4 |
| Hürthle | 2 | | |

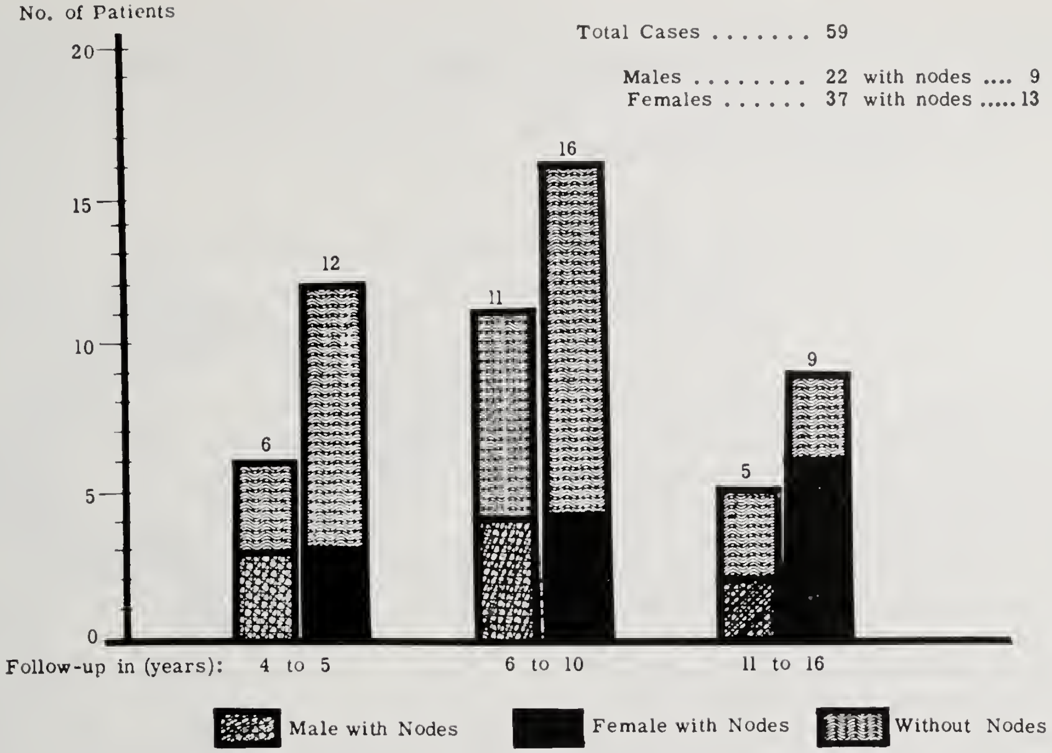

**FIG. 2. Follow-up of patients living and well with incidence of lymph node metastases.**

nosis ranged from 3 to 52 years. This gives us an overall figure of 77.6 per cent of patients surviving free of disease, which compares quite favorably with most published reports.[5]

Also worthy of note is the fact that approximately ⅓ of the patients in this category had positive lymph nodes at the time of initial treatment and that there was no significant sex difference. Particularly interesting is the fact that of the 14 patients who have been followed for from 11 to 16 years, 8 or 57 per cent had metastatic disease at the time of initial treatment.

## Discussion

The cases presented in this report have been reviewed in light of our current concepts of the treatment of thyroid carcinoma at the Naval Medical Center, which in general are as follows:

For lesions confined to 1 lobe of the thyroid following careful inspection of the tissues of the neck at exploration (including rapid frozen section examination of suspicious areas) hemithyroidectomy including the isthmus of the gland is performed, sparing the uninvolved lobe.

For lesions involving 1 lobe and 1 or more ipsilateral lymph nodes hemithyroidectomy including the isthmus with ipsilateral radical neck dissection is performed, sparing, when possible, the jugular vein.

For lesions involving both lobes and/or with unilateral or bilateral cervical metastases total thyroidectomy is performed with modified radical neck dissection as indicated. (When bilateral neck dissection is indicated this is accomplished by a 2-stage procedure. The more involved side is dissected at the time of the initial thyroidectomy. The less involved side is done at a secondary procedure.)

For lesions with distant metastases total thyroidectomy is performed with removal of regional metastases when possible. These patients are then treated with radioactive iodine when the lesions are demonstrated to pick up the material.

For lesions which are inoperable, radioactive iodine therapy as indicated above or external irradiation to those lesions which do not pick up the radioactive materials is given.

## Summary

A review of pertinent information in a series of 106 cases of adenocarcinoma of the thyroid at the Naval Medical Center has been presented. In this series the survival rate free of disease in those followed from 4 to 16 years is 77.6 per cent. Current concepts in the therapy of thyroid carcinoma have been presented.

*(Continued on page 644)*

# A Plea for the Continued Use of Local Anesthesia in Major Surgery*†

LT. COMMANDER YORKE G. JACOBSON, MC, USN‡

*Experimental Surgery Division, United States Naval Medical Research Institute, Bethesda, Maryland*

COCAINE was first brought to the world's attention by Carl Koller in 1884,[1] and Schleich demonstrated cocaine infiltration in 1892.[2] When Abel discovered epinephrine its use in conjunction with cocaine provided a safe local anesthetic for prolonged surgery. Braun[3] of Germany and Cushing[4] and Matas[5] of the United States emphasized the simplicity of its use at a time when general anesthetics were unperfected.

Anesthetists frequently advocate the use of local anesthesia for major surgical procedures in the poor-risk patient, only to find that in the hands of the uninitiated surgeon it usually has to be supplemented with intravenous or general anesthesia. Too often this is not a consequence of the lack of anesthesia but rather the surgeon's unfamiliarity with the necessity for gentleness in tissue handling while employing this technique. The ability of the patient to perceive pressure is generally interpreted as pain, and hence minimal manipulation is mandatory. Once the surgeon recognizes this he will automatically avoid trauma to areas which elicit this response.

Because of the refined general anesthesia of today it is no wonder that local anesthesia has been used in decreasing increments. By describing its use for inguinal hernioplasty it is hoped that a more concerted effort will be made on the part of anesthesiologists to educate both their disciples and the neophyte surgeon in the use of local anesthesia in elective surgery.

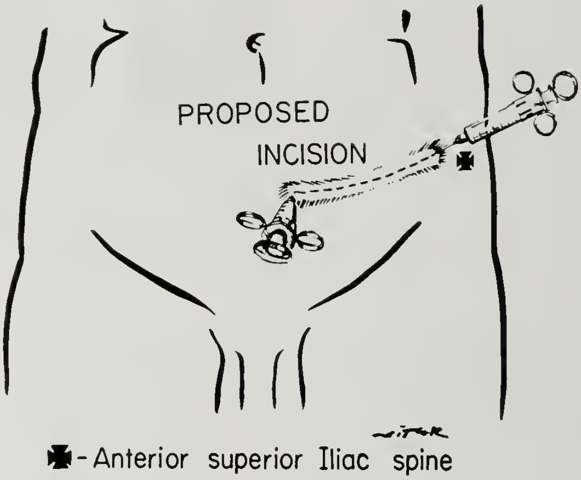

**FIG. 1. Dermis and subcutaneous tissue are infiltrated over line of incision.**

## Method and Materials

One hundred and fifty healthy males (14–76 years of age) and 10 females (17–58 years of age) had hernioplasties performed under local anesthesia. There were 24 recurrent and 16 femoral hernias in this series.

The forthcoming operative procedure is thoroughly discussed with the patient preoperatively with assurance that, when necessary, intravenous or inhalation anesthesia will supplement the local. Premedication of 200 to 300 mg. of Nembutal® and 10 to 15 mg. of morphine is used in young patients, with proportionately less in the older patients. Although several combinations of anesthetics have been tried, preference has been given to either 0.5 per cent Xylocaine® (lidocaine) with 1:200,000 epinephrine or 0.5 per cent Carbocaine® (mepivacaine). For short procedures the latter does not require epinephrine. A mean of 46 ± 6 c.c. was used for each

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[*] From the Bureau of Medicine and Surgery, Navy Department, Research Task No. MR005.02-0020. The opinions or assertions contained herein are the private ones of the author and are not to be construed as official or reflecting the views of the Navy Department or the Naval Service at large.

[†] This paper was prepared for the National Naval Medical Center Number (October) of the MEDICAL ANNALS, but because of lack of space in that issue it is published here.

[‡] Presently Coördinator of Surgical Research at the Research Institute for Skeletal Muscular Diseases of the Hospital for Joint Diseases, 1919 Madison Avenue, New York, N. Y.

repair. Appropriate equipment for resuscitation and personnel familiar with their use are always available. The circulating nurse monitors the patient and communicates his perception of pain to the surgeon should this occur during the procedure. An anesthesiologist is present for the poorer risk patients.

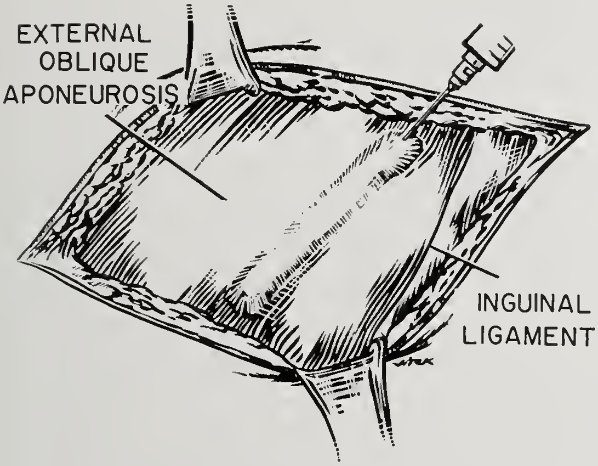

**FIG. 2. External oblique aponeurosis is carefully infiltrated and iliohypogastric and ilioinguinal nerves are injected endoneurally.**

Although Ponka[6] uses nerve blocking, this is time-consuming and unnecessary. The procedure adopted after various trials is as follows (figures 1, 2 and 3): The dermis and subcutaneous tissue are infiltrated over the line of the incision with a no. 22, 6-inch needle. After the incision is made the external oblique aponeurosis is carefully infiltrated and, after opening it, the iliohypogastric and ilio-inguinal nerves are injected endoneurally. This usually suffices, but in some instances the spermatic cord needs infiltration (if it is to be manipulated). If retraction on the internal oblique muscle is prolonged a few c.c. of the agent is injected here. In all instances of a McVay repair Cooper's ligament must be infiltrated.

## Results

Recurrence rate in this series has not been adequately studied, but in over 42,000 cases repaired at the Shouldice Surgery there was a 0.5 per cent recurrence rate.[7]

In the 160 cases a bilateral repair was performed 29 times with a total of 87 ± 6 c.c. The total complications included 3 hematomas (1.6 per cent) and 1 wound infection. Drug toxicity was not noted.

All patients were interviewed the following day, and 95 per cent were well satisfied with the anesthesia. Of 29 patients who had a previous hernioplasty with general or spinal anesthesia all but 1 preferred local. The latter was the patient with the wound infection.

## Discussion

Local anesthesia in major surgery is useful as a surgical training tool to emphasize gentleness in surgical technique. Furthermore, it is a safe means of anesthesia in the poor-risk patient. It can be used routinely in places where trained anesthetists are scarce. By dilution to a mixture of 0.06 per cent Xylocaine and 1:200,000 epinephrine and adding 150 TRU of hyaluronidase, quantities of up to 1,200 c.c. may be employed for more extensive surgery, i.e., cholecystectomy, gastrectomy, and amputations.[8]

In the bilateral repairs done in this series the toxic level of 100 c.c. (500 mg.) was not exceeded. Even though epinephrine may allow more drug to be used because of the slower absorption, strict efforts were made to avoid overdosage. Precautions should be taken in the obese patient in whom anesthesia is difficult and hence more drug required. In these instances a more dilute mixture is used initially.

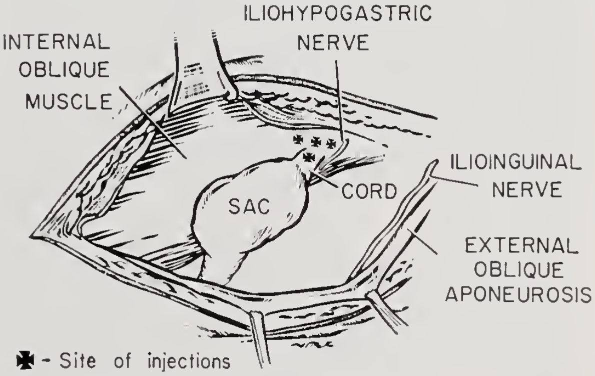

**FIG. 3. In some instances the spermatic cord needs infiltration.**

The great strides made in the development and application of inhalation anesthetic agents have occasioned their wide usage in all major medical centers in this country. Consequently, the use of local anesthetic agents has decreased and knowledge of their efficacy and safety has become inapparent to many practicing surgeons. On the other hand, in smaller communities in which there exists a paucity of trained anesthetists local anesthesia enjoys more popular usage and quite adequately meets the prevailing surgical needs.

(*Continued on page 644*)

# The Use of Antabuse: An Approach That Minimizes Fear

**SANFORD L. BILLET, M.D.**

*Chief, Alcoholic Rehabilitation Clinic, District of Columbia Department of Public Health*

ANTABUSE® (disulfiram) can be used with little risk as part of a total treatment program for alcoholism. A total treatment program includes psychotherapy, drug therapy, and vocational and social rehabilitation. In this program Antabuse is often a helpful lever that enables both patient and physician to achieve greater success.

Antabuse was first used in the treatment of alcoholism in 1948.[1] Since then it has gained wide publicity and articles have been written describing its mode of action and its value as an adjunct in the treatment of alcoholism.[2, 3] In spite of many favorable reports large numbers of psychiatrists and other physicians who treat alcoholics have never prescribed Antabuse. Others stopped prescribing Antabuse entirely after a short period or limited its use to a very small percentage of their alcoholic patients. Many psychotherapists who competently prescribe psychopharmaceuticals claim that they do not know how to use Antabuse, while others express great concern about injuring patients both physically and emotionally even though they have not seen this happen when Antabuse is used as part of a larger treatment program.

During the late 1940's and early 1950's when Antabuse was most in vogue it was used in very high doses, 1 to 4 tablets each day, and it was routine to "challenge" the patient with alcohol so that the patient would experience "a reaction." The reaction was described in frightening terms, and the patient was encouraged by the physician to be afraid. Using high doses of Antabuse did lead to some very serious reactions with extreme hypotension, shock and death. These serious reactions together with the patient's tendency to discontinue medication soon ended the Antabuse vogue.

The emphasis in using Antabuse has been on fear. The patients have been frightened by the physician, and the physician has been afraid that he would harm the patient. I believe that many physicians have unconsciously wanted their patients on Antabuse to fail in treatment so that the drug could be avoided in the future because it frightened the prescribing physician. Even the manufacturer's literature has tended to be overly cautious and frightening. It is recommended that the patient be given an identification card that indicates he is taking Antabuse. This is recommended even though this card is almost never used except in an abusive fashion by patients who have already discontinued their medication out of fear and who are again drinking. Physicians remember the old method of prescribing Antabuse and are too often unaware of the very safe techniques that have been developed with moderate dosage.

Several clinics and centers where large numbers of alcoholics are treated still prescribe Antabuse to large numbers of patients. At the Alcoholic Rehabilitation Division of the District of Columbia Department of Public Health over 400 patients have been started on Antabuse during the past 3 years. We estimate that over 200 of these 400 patients are currently taking Antabuse. Our experience is that Antabuse is a very helpful adjunct in the treatment of alcoholism, and we look for contraindications rather than indications to the use of Antabuse. In well over half of our cases we find no contraindications to the use of Antabuse. (Contraindications include inability to comprehend the total treatment program and in some instances severe physical disease.) In 3 years we know of only 1 death related to the use of Antabuse and that was indisputably a suicide.

On many occasions we have prescribed Antabuse to patients with severe physical illness after deciding that continued drinking was more of a danger to the patient than a mild Antabuse reaction.

We believe that Antabuse should be used as a helpful adjunct in the treatment of alcoholism.

Often the patient greatly appreciates having concrete, immediate reasons not to drink alcoholic beverages. Antabuse provides such a concrete and immediate reason. When used in low dosage, ½ tablet or less each day, severe reactions are rare. Patients who drink on low dosage usually feel uncomfortable, and Antabuse in this way prevents people from using alcohol according to their old patterns. This is explained to the patient in some detail. We play down fear and we play up helpfulness. We point out to patients that they can always stop taking their medication and that they should stop taking it if they plan to drink, but that Antabuse will help them avoid taking the unplanned, impulsive drink. The following is an example of how the patient is instructed:

### Instructing the Patient on the Use of Antabuse

As part of our treatment program we want you to start taking Antabuse. You may have heard about Antabuse at one of our group therapy meetings or perhaps you have read about it. Antabuse is a medicine that was first discovered in the 1940's by some doctors who were looking for a medicine to help people who have certain parasitic infestations. They started taking the medicine themselves and found that if they drank alcohol while they had Antabuse in their system they would become ill. This led to the use of this medicine specifically to help people to keep from drinking alcohol. The medicine works by interfering with the way the body handles alcohol after the alcohol gets into your system. It stops the breakdown of alcohol at an intermediate stage, and the substance that accumulates in the body causes the reaction that people experience when they drink alcohol while Antabuse is in their system. The reaction varies considerably depending on the amount of Antabuse in the system and the amount of alcohol that is taken. Most of the symptoms are caused by enlargement of the surface blood vessels and a corresponding drop in blood pressure. The mildest symptom that is experienced is a flushing of the skin with a feeling of heat. This is due to the enlargement of the blood vessels in the skin. Some people experience little more than this. Other symptoms that go with this and with the drop in blood pressure include a feeling of weakness and nausea, headache, sweating, palpitations, and in more severe cases vomiting and fainting. If Antabuse is used in very large doses and significant amounts of alcohol are taken, reaction can be very severe, and in the early days of the use of this medicine there were a number of serious injuries and fatalities. We have no serious injuries or fatalities when the medication is taken as we prescribe it. On the dosage we prescribe patients who drink usually experience only a moderate amount of discomfort. This moderate amount of discomfort is enough to keep you from drinking acording to your old patterns. You won't be able to drink to feel good. You won't be able to drink to get rid of anxiety or to get up your courage. You won't be able to drink just to be friendly or because there doesn't seem to be any reason not to drink. Antabuse will give you another substantial reason to refuse a drink. When friends ask you to take a drink you will be able to tell them you are taking Antabuse, and if they still insist that you drink you will know they are not your friends.

When taken daily, Antabuse builds up in the body fluids and will remain in the body for at least several days after you stop taking it. Some people have an Antabuse reaction as much as a week to 10 days after they stop taking Antabuse, if they drink alcohol. This means that you can't stop taking Antabuse today and start drinking the old way tomorrow. You have to wait at least several days and hopefully in that period of time you would seek further help from your therapist and start back on Antabuse. It is a kind of insurance policy. It gives you another solid reason not to resume your old drinking pattern.

There are certain precautions that you have to take when you are on Antabuse. It is unusual for people to have any serious symptoms from Antabuse, but occasionally patients will develop a rash or some other symptom while they are taking this medicine, so I want you to be sure to report any kind of symptoms that you develop after you have started on the medicine. In addition to that you have to be careful not to inadvertently drink alcohol. The system will react to alcohol in any form, not only alcoholic beverages. Years ago, when high doses of Antabuse were used, some people claimed that they saw reactions due to alcohol rubs, but we have seen no reactions to alcohol absorbed through the skin or through the lungs with the doses of Antabuse that you will be taking. It is important for you to avoid alcohol even in medicines. Any time your doctor prescribes a liquid medicine for you, remind him that you are on Antabuse and you cannot take anything that contains alcohol. When you have your prescriptions filled also tell the pharmacist that this is the case and that you must not have any medicine containing alcohol. It is important for you not to drink from a punch bowl and not to take drinks when you don't know what is in them. Even foods that contain alcohol must be avoided unless you are certain that the alcohol content has been cooked out.

If you do drink alcohol while taking Antabuse it is likely that you will become uncomfortable enough so that it will prevent you from going about your regular activities.

If you should have an Antabuse reaction, that is, if you should drink while you are taking Antabuse and then have some symptoms, it is very likely that you will want to discontinue your activities at the time and you will probably want to go to bed. Most people will feel nauseated enough so that they will want to have some kind of container nearby in case they vomit. It is usual for someone with an Antabuse reaction to lie down and finally fall asleep and to feel quite well when they awaken several hours later. Lying down is the best thing you can do since this makes the effects of the lowered blood pressure less significant. Certainly while you are feeling ill you should not try to do things like driving a car or climbing a ladder or other activities that would endanger you or others because of your feeling of weakness and discomfort. If a reaction makes you feel extremely ill or if you become concerned, it would be appropriate for you to call a doctor or go to a hospital emergency room. Do not try to drive during a reaction. If you don't take any alcohol you won't have a reaction so it is worthwhile to avoid taking substances that might contain alcohol. The 1 drug other than alcohol that might cause an Antabuse reaction is paraldehyde, so paraldehyde must also be avoided.

It is a good idea to get used to a regular pattern in the taking of your Antabuse. Perhaps you can combine it with some other activity that you rarely forget. Some people will take their Antabuse immediately after brushing their teeth in the morning. Others take it before a meal or at bedtime. If you are married or have some family member or other helpful person with you regularly it is a good idea to take your medication at a time when they are available so that they can remind you about taking it and reinforce your desire to take it each day. If you forget to take it at the regular time it is quite appropriate to take it when you do remember. We recommend that you carry a small pillbox with you that contains 7 tablets. In that way you will always have 2 weeks' supply of medicine with you, and if you should be called away unexpectedly you will not be without medication.

Lots of people ask how long they will have to stay on medicine. We have discovered that most people don't like the idea of being on medicine indefinitely and decide in their own minds that they will give this a brief trial. We recommend that you take the medication for 99 years. Since it is an excellent extra protection for you, we see no reason for you not to take it. You don't have to agree to take Antabuse forever; we just want you to know that is how long we feel it can be useful to you.

Years ago people were given a "challenge" so they would experience a "reaction." We don't see any value in this. As far as we are concerned you're done with drinking alcohol and we are not going to give you any alcohol.

If any further questions should come up in your mind about the treatment program or specifically about Antabuse, please be sure to speak to your therapist about it. Good luck.

The above instructions and explanation to the patient present realistically the effects and potential dangers connected with Antabuse. Fear is played down as a factor in the usefulness of Antabuse. Certainly fear remains an important factor in many patients, but more positive feelings are encouraged in our presentation to the patient and we feel these other factors are very helpful. Patients frequently report that Antabuse is particularly helpful to them in their dealings with friends and acquaintances who pressure them to "drink normally," even though the patient has had multiple experiences with his inability to "drink normally." Antabuse in such an instance is not a feared club but a helpful lever.

## Summary

Antabuse is a useful adjunct in the treatment of alcoholism. It can be used with little danger as part of a total treatment program and its usefulness need not be understood in terms of fear alone but can be understood in terms of helpfulness in avoiding destructive behavior patterns.

An example of explanation and instructions to the patient has been presented.

(*Continued on page 644*)

# Pulmonary Alveolar Proteinosis

## Report of a Case with Lung Biopsies and Oral Enzyme Therapy

**SAMI AYOUB EL-KHOURY, M.D.**
*Staff Medical Officer, Glenn Dale Hospital, Glenn Dale, Maryland*
**LAWRENCE A. DUNMORE, JR., M.D.**
*Supervisory Medical Officer, Glenn Dale Hospital*
**WILLIAM J. WASHINGTON, JR., M.D.**
*Chief, Medical Services, Glenn Dale Hospital*

In 1958 Rosen, Castleman and Liebow[1] described a chronic disease of the lung with a characteristic histologic pattern and a variable clinical course. This disease was described by these authors on the basis of clinical and histologic study of 27 patients from whom lung tissue and clinical material were available for review. The name "pulmonary alveolar proteinosis" was given to this condition because of its characteristic histologic pattern. Six years later the cases reported in the world literature, including the original 27, approached 75, and the only consistent feature of the condition is its characteristic histologic picture. The exact etiology, course, therapy, and prognosis remain essentially speculative.

Recently we have seen a case of pulmonary alveolar proteinosis which has proved very interesting during the course of 2 hospitalizations and especially so were the results of 2 lung biopsies at 6-month intervals.

The purpose of the present communication is to detail these findings and to report on the administration of oral enzyme therapy.

### Report of Case

W. G., a 46-year-old colored man, was admitted for the first time to Glenn Dale Hospital on December 21, 1959 because of abnormal chest X-ray films discovered on a routine chest roentgenogram in mid-December, 1959. He appeared in good clinical condition; however, he admitted to dyspnea on exertion and a loss of 4 lbs. of weight within the previous week. A tuberculin skin test with 0.0001 mg. of purified protein derivative (PPD) was positive with 15 mm. induration after 72 hours. Skin tests with blastomycin, histoplasmin and coccidioidin were negative. The patient remained afebrile throughout hospitalization. Bronchoscopy on December 28, 1959 showed no endobronchial disease and was considered to be within normal limits. Sputum culture for pyogens yielded alpha streptococci and *Neisseria catarrhalis* and was negative to smear and culture for fungi and acid-fast bacilli. Lupus erythematosus preparations were negative.

Admission chest X-ray film showed moderately dense reticular and somewhat nodular density in both lower lung fields. Admission impression was bilateral pneumonitis, etiology undetermined. Therapy was tetracycline 500 mg. every 6 hours. Serial chest roentgenograms showed partial bilateral clearing. Bilateral bronchograms on February 26, 1960 showed no evidence of bronchiectasis. Unfortunately, no pulmonary function studies were performed at this time. The patient was discharged on March 3, 1960 with a diagnosis of bilateral pneumonitis, etiology undetermined, resolved; hiatus hernia, nonsymptomatic. A discharge X-ray film of February 29, 1960 was interpreted as showing the right lung within normal limits. The left lung showed linear infiltration between second and fourth anterior ribs in lung, zone 2 (figure 1).

After his discharge he was seen at the District of Columbia Chest Clinic and resumed full-time work in the cleaning business and truck driving. In the former job he was in contact with perchlorethylene, a dry-cleaning agent. A chest roentgenogram on May 18, 1960 did not show any change from February 29, 1960. However, the film of October 12, 1960 showed recurrence of the previously described densities in both lower lung fields. Chest X-rays films until January 13, 1961 did not show any dramatic changes. After January 13, 1961 the patient was lost to follow-up until January 19, 1962. A chest X-ray film on that date showed further increase in the bilateral lower lung-field densities, and the patient was again hospitalized.

The second hospitalization at Glenn Dale Hospital began on February 12, 1962. On admission the patient was in good clinical condition, stated that he had had a chest cold for about 3 weeks, and complained again of dyspnea on exertion and recent weight loss (6 lbs.

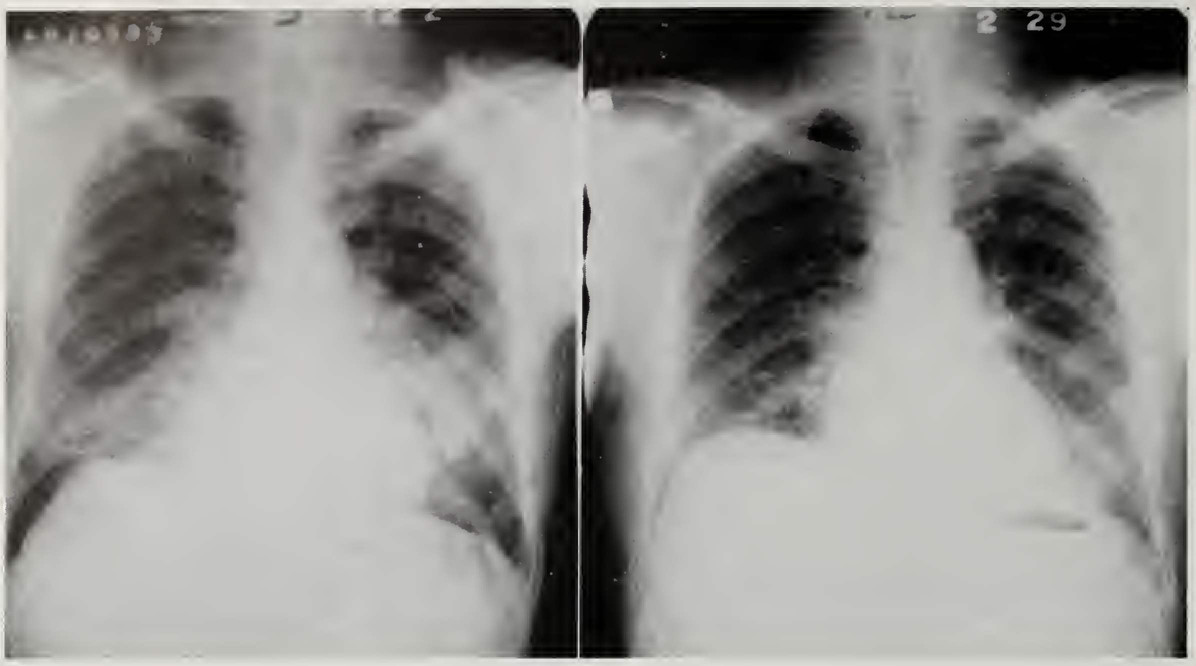

FIG. 1. First admission and discharge X-ray films. Note resolution of bilateral lower lung field densities with only antibiotic therapy.

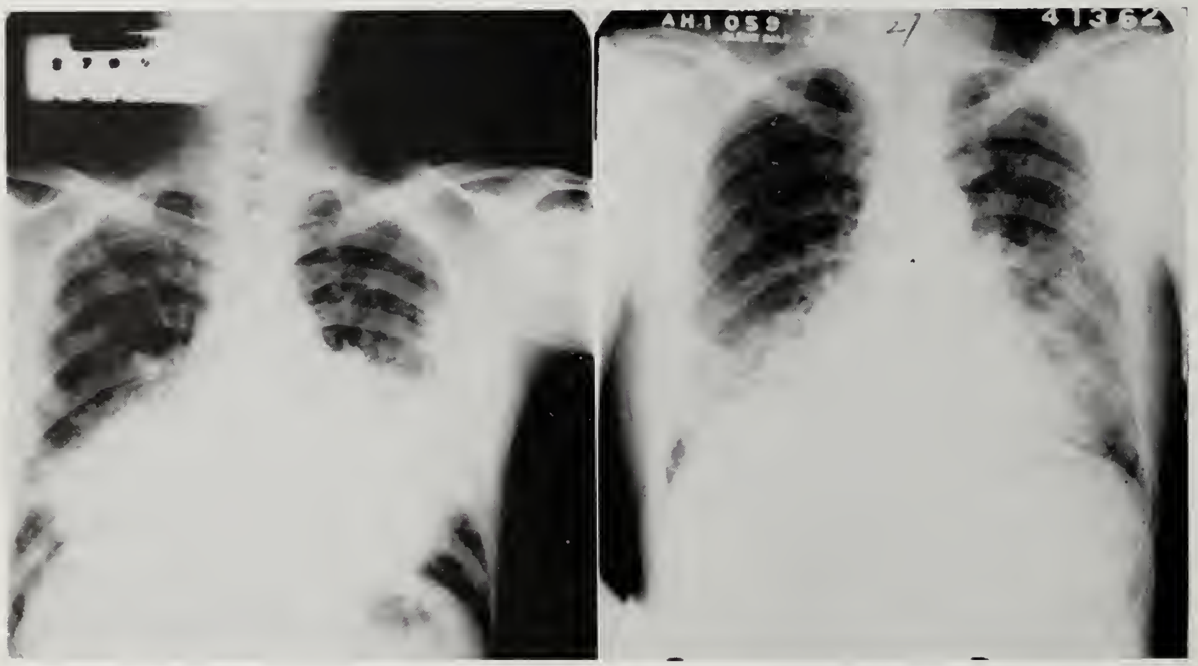

FIG. 2. Left—film on second admission. Note progression. Right—film immediately prior to first lung biopsy. Partial clearing on antibiotic therapy.

in previous months). He was a well-developed, well-nourished man. A few rales were hear in both bases of the lungs, and cardiac auscultation revealed several extrasystoles. The blood pressure was 165/100, the venous pressure 145 mm. $H_2O$, the circulation time, arm-to-tongue, with Decholin®, was 13 seconds. Skin tests with histoplasmin, blastomycin, and coccidioidin were again negative. The tuberculin skin test was not repeated. A chest X-ray film showed moderately dense reticular and somewhat nodular densities in both middle and lower lung fields. The admission diagnosis was pneumonitis, bilateral, etiology undetermined. Although the patient was afebrile he was again treated with tetracycline. Bronchoscopy on February 16, 1962 was negative; the left upper lobe orifice was not visualized. Culture of bronchoscopic fluid yielded *Proteus mirabilis, Staphylococcus aureus,* and *Staphylococcus albus.* The latter 2 were coagulase-positive. Susceptibility studies on the staphylococci revealed sensitivity to streptomycin, chloramphenicol, nitrofurantoin, and mandelate. Bronchograms on February 26, 1962 showed incomplete filling of the right upper lobe, and the right lower lobe appeared slightly contracted; the left lower lobe appeared slightly contracted. There was no evidence of bronchiectasis. On March 10, 1962 tetracycline was discontinued and chloramphenicol was begun, 500 mg. 4 times daily. On March 19, 1962 a dermatitis of the right foot was noted. The chloramphenicol was discontinued, and the dermatitis cleared up promptly. The patient did not receive additional antibiotics during his hospitalization. Despite slight clearing bilaterally on the X-ray films (figure 2) a significant amount of pulmonary infiltration was evident on the chest X-ray film of April 13, 1962, and open lung biopsy was recommended.

On May 1, 1962 open lung biopsy was performed and the pathologic diagnosis was pulmonary alveolar proteinosis (figure 3, left). The diagnosis was confirmed by Dr. S. Rosen at the Armed Forces Institute of Pathology. Serial X-ray films of June 21, 1962 and August 9, 1962 showed radiologic stability of the disease (figure 4, left).

On August 31, 1962 oral pancreatic enzyme therapy was started with oral trypsin and chymotrypsin*. The initial dosage was 2 tablets t.i.d. for 6 days to September 5, 1962. This was then increased to 2 tablets q.i.d. and continued to September 18, 1962. Dosage was then decreased to 1 tablet q.i.d. and maintained at this level until December 1, 1962, when the enzyme therapy was discontinued. During the first few days of treatment and after the increase in dosage the patient noted an increase in the amount of expectoration for another 2 or 3 days, before the sputum returned to its previous scarce amount. Exertional dyspnea decreased and pulmonary function studies remained stable (table 1). No systemic or localized reactions were noted.

**TABLE 1: Pulmonary Function Studies Before and After Pancreatic Enzyme Therapy**

| Date | Vital Capacity | | Timed Vital Capacity-Per cent | | |
|---|---|---|---|---|---|
| | Liters | Per cent | 1 sec. | 2 sec. | 3 sec. |
| 7/12/62 | 2.7 | 58 | 73 | 85 | 91 |
| 8/30/62 | 3.0 | 63 | 85 | 95 | 100 |
| 10/8/62 | 3.2 | 67 | 70 | 89 | 98 |
| 12/17/62 | 3.0 | 64 | 85 | 95 | 100 |

X-ray films of October 25, 1962 and November 5, 1962 showed further clearing bilaterally.

On November 5, 1962 another left thoracotomy was performed and lung biopsies were taken as close as possible to the sites of the biopsies of May 1, 1962. The pathologic report was as follows:

"1. Left upper lobe—section shows congested lung tissue which is air-bearing and with no abnormal exudate. The pleural surface shows an area of fibrosis in which there is marked vascularity. In some sections there is a small area of atelectasis.

2. Left lower lung—section shows air-bearing lung in which there is moderate congestion.

"Diagnosis: Air-bearing lung tissue" (figure 3, right).

The biopsy specimens were submitted to Dr. S. H. Rosen at the Armed Forces Institute of Pathology, who forwarded the following report, quoted in part:

"We concur in your observation that there is no detectable alveolar proteinaceous material in the second lung biopsy, your number B-3711. This applies to PAS-stained sections as well as to H and E sections."

The patient was observed for 1 month after discontinuation of the enzyme therapy before his discharge on January 3, 1963. Discharge X-ray films showed a stabilized post-thoracotomy status on the left with no significant pulmonary infiltration apparent (figure 4, right).

## Discussion

Any attempts to explain the etiology of pulmonary alveolar proteinosis on the basis of exposure to external irritants, for example inhalants, have not been borne out by overall review of cases as to occupational and physical environmental factors.[2] Therapy has received widespread consideration in a generally empirical fashion, especially in cases with progressive pulmonary insufficiency, and has varied from none in the more asymptomatic cases to antibiotics of various types,[3, 4] steroids,[5] potassium iodide,[3, 6] and, most recently, various types of enzymatic agents by many routes.[7, 8, 9] In spite of the good results suggested by many, the question of a specific therapeutic agent for this disease remains unanswered.

The clinical course, as suggested by the original authors, remains variable. Some early observers suggested that this was probably a disease with progressive symptoms leading to pulmonary insufficiency.[10] Shortly thereafter cases were reported that were asymptomatic as well, and the literature at present includes cases of a variable nature symptom-wise. Pulmonary function studies have generally been consistent with the severity of symptoms. Some cases with

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* Supplied as Chymolase by the Warren-Teed Products Co., Columbus 15, Ohio. Each tablet contains 50,000 Warren-Teed units of proteolytic activity supplied by a purified enzyme concentrate derived from beef pancreas containing specific trypsin and chymotrypsin activity in a ratio of approximately 3 to 1.

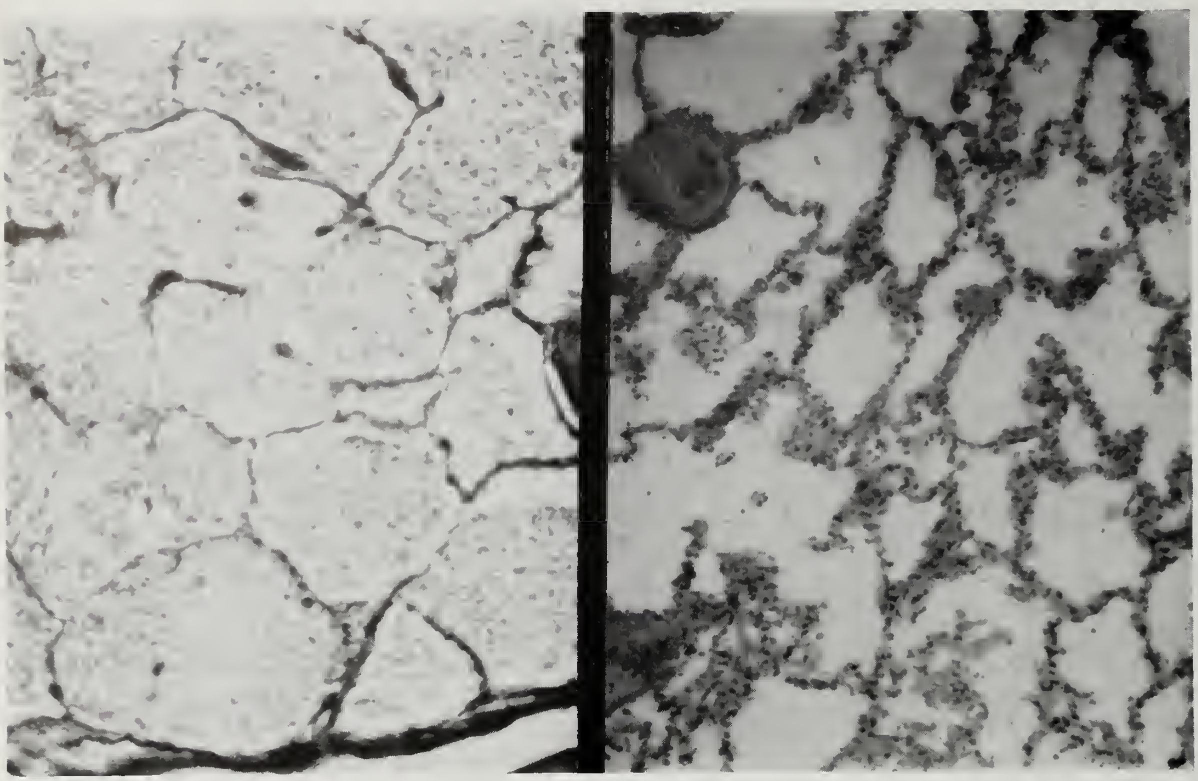

FIG. 3. Left—first lung biopsy showing characteristic picture of pulmonary alveolar proteinosis. Right—second biopsy from same site 7 months later showing normal pulmonary alveoli.

FIG. 4. Left—film prior to second lung biopsy. Note bilateral clearing. Right—film 2 months after discharge showing stability.

normal diffusion studies and others with an alveolar-capillary block-type pattern have been reported.

To our knowledge, 3 previous cases of pulmonary alveolar proteinosis have been subjected to repeated lung biopsies.[1, 6, 11] Histologic studies on 1 of these patients showed only partial clearing.[11] The present case is the fourth reported to have a repeated biopsy and the first to show complete clearing of the proteinaceous material.

Regarding the prognosis nothing definite is known. As with any case producing pulmonary insufficiency the cases that progress to this extreme would most certainly have a poor prognosis.[10, 12-15] No accurate mortality rates are available. The morbidity is high except in asymptomatic cases, and, therefore, herein lies its challenge.

## Summary

A case of pulmonary alveolar proteinosis, diagnosed by its characteristic histologic appearance, has been presented. This case was made interesting by virtue of tendency to spontaneous remission. It is of additional interest to speculate if the diagnosis on the first hospitalization would have been pulmonary alveolar proteinosis if the patient had been subjected to lung biopsy at that time. One might also speculate as to the possible etiologic role of the perchlorethylene to which this patient was exposed.

We are unable to unequivocally state that the oral enzyme therapy contributed significantly to the radiologic clearing and improvement of the patient, since some improvement was apparent immediately prior to the institution of the oral enzyme therapy. It should be noted that the second lung biopsy which showed complete clearing of the proteinaceous material was taken from the same areas as the earlier diagnostic biopsy.

Further trials with this and other therapies are indicated. Detailed follow-up studies in proven cases are of prime importance.

We are indebted to Miss Margaret Windle for her excellent stenographic aid and to the Radiologic Section for the photographs.

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# Carcinoma within a Chronic Burn Scar (Marjolin's Ulcer)

## Report of a Case

**STEPHEN A. GELLER, M.D.***

*Senior Student, Howard University College of Medicine*

**LEWIS H. KURTZ, M.D.**

*Instructor in Surgery, Howard University Division of Surgery, District of Columbia General Hospital*

**MITCHELL W. SPELLMAN, M.D., F.A.C.S.**

*Professor and Chief Medical Officer, Howard University Division of Surgery, District of Columbia General Hospital*

Jean Nikolas Marjolin first described, in 1828, the lesions which have come to bear his name. His lucid description of the carcinomatous ulcers which originate within degenerating scars of burns appeared in the *Dictionnaire de Medicine Pratique* of that year.[1]

Carcinoma is observed in burn scars more often than is commonly realized. Indeed, Marjolin's ulcer is said to occur in more than 2 per cent of chronic burn ulcers. Bowers and Young,[2] in their report of 9 cases, pointed out that it is the lack of awareness of this entity which often contributes to delay in treatment.

A patient with Marjolin's ulcer was recently admitted to the Howard University Surgical Service at the District of Columbia General Hospital. The description of this lesion, its management, and an evaluation of the entity are presented herein.

### Report of Case

Mrs. M. O., a 60-year-old hypertensive, diabetic woman, entered the District of Columbia General Hospital on August 27, 1963 with the chief complaint of "My scar broke down." About 50 years prior to this admission the patient sustained severe thermal burns on the back of both legs and buttocks, as well as on smaller areas of her arms and back. The burns healed with gross cicatrices and she had remained for the most part without supervised medical care. During the intervening years the scars were often traumatized or irritated and recurringly ulcerated, particularly about the left popliteal space and left calf where there was also a significant contracture. On this occasion the patient was hospitalized because of an ulceration adjacent to the popliteal fossa of more than 3 weeks' duration that became necrotic and secondarily infected. The site was unsuccessfully treated with warm soaks. The remainder of the history was noncontributory.

The patient was obese with a blood pressure of 182/114. Large cicatrices were observed overlying both popliteal fossae, the dorsal surface of both legs, both buttocks, and numerous ones over the back, calves, and elbows. There was an irregularly necrotic, ulcerative area within the left popliteal fossa that measured 17 cm. in length and 6 cm. in width. The edges of the ulcer were rolled and of varying thickness, and the surface was dull gray, irregularly nodular, and covered with a purulent discharge. The ulcer and the surrounding scar were firm, nontender, and fixed to the underlying musculature at multiple foci. The flexion deformity of the left knee measured about 30 degrees. The examination was otherwise negative.

Conservative treatment including warm saline soaks was initiated, and the patient's cardiac, renal, and diabetic status was evaluated during this interval. Multiple biopsies of the ulcer and adjacent skin disclosed an infiltrating, well-differentiated squamous-cell carcinoma of low-grade malignancy. On September 23, 1963, under spinal anesthesia the patient underwent a wide resection of the ulcer. With excision of the cicatrix the flexion deformity was resolved and the leg was almost fully extended. Split thickness grafts from the right leg were sutured transversely over the defect, and both the operative and donor sites were covered with vaseline gauze and pressure dressings. The left leg was immobilized in a long leg cast in almost complete extension. The patient's postoperative course was uneventful, with survival of 90 per cent of the graft. She was passively, and later actively, exercised by the physical therapist and discharged to the outpatient department on October 28, 1963.

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* Now interning at Lenox Hill Hospital, New York, N. Y.

The pathologist's report stated: "Specimen submitted as old burn scar consists of a section of skin and subcutaneous tissue, measuring 27 cm. in its greatest length, 20 cm. in its greatest width, and 1.5 cm. in greatest thickness. There is an ulcerated area 20 cm. in its greatest dimension. It has a hemorrhagic, necrotic base and undermined, ragged edges. There is a wide margin of grossly uninvolved skin from all segments. Microscopic diagnosis: old burn scar, with infiltrating, well-differentiated, squamous-cell carcinoma, low-grade malignancy. The resected margins are free of tumor" (figures 1, 2 and 3).

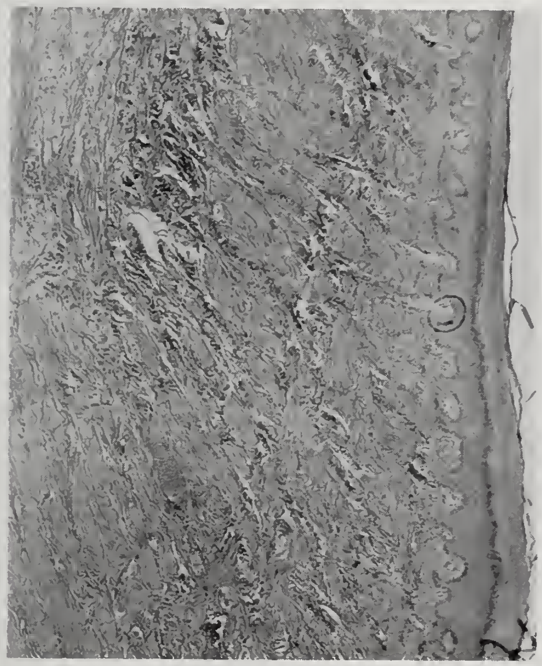

**FIG. 1. Section of skin with scarring due to burns.**

Apart from consideration of its capacity as a carcinogen, a burn is an injury inflicted on the body by a degree of heat greater than is compatible with health in the part affected and which can be caused by any source that radiates heat in excess of tissue tolerance. The potentiality of the scar following a burn to undergo malignant degeneration depends on (1) the level of temperature, (2) the nature of the exciting agent, (3) the capacity of the tissue for heat absorption, (4) the duration of exposure, (5) the susceptibility of the tissue subjected to the injury, and (6) the condition of the patient.[1] That burning is indeed a carcinogenic stimulus has been recently reaffirmed by Saffiotti and Shubik.[3]

The fibrosis of the cicatrix results in ischemia and this, in turn, facilitates ulceration. Trauma easily destroys the delicate epithelium, and healing becomes more protracted after each insult. The regenerated integument is vulnerable and progressively inferior so that persistent stimulation to the marginal epithelium for repeated growth and repair with constant frustration may lead to a loss of tissue restraint and eventually cancer.[1]

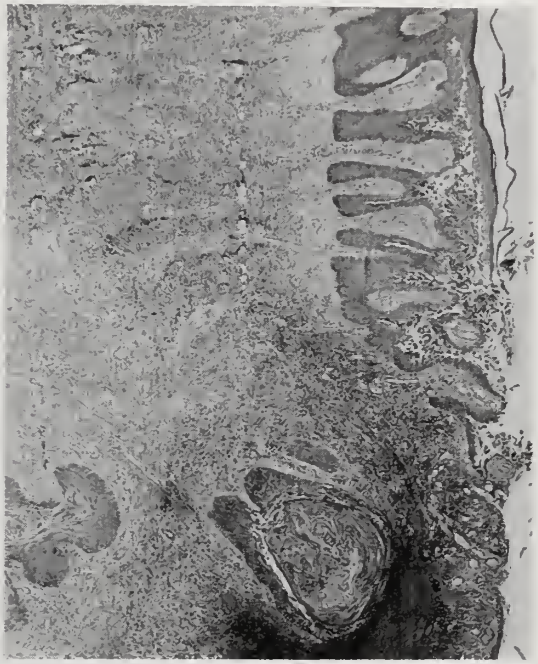

**FIG. 2. Section of skin at margin of infiltrating squamous-cell carcinoma.**

As a general rule, the development of carcinoma within scars of burns occurs 20 to 40 years after the primary trauma and usually arises after repetitive ulceration. It has been stated that the age of the patient at the time of the initial injury determines to some extent the period of time before the cicatrix becomes neoplastic[4] and, further, that the older the patient at the time of burn the shorter the interval before the onset of skin cancer and, conversely, the younger the age at burning the longer the latent period.[5]

Cancers of the skin with a pathogenesis uncommon in Western society have been frequently observed in India and Japan. Kangri burn cancer, prevalent among the poorer classes of Kashmiri in India, is a consequence of the wearing of the *kangri*, an earthenware cooking bowl which is held against the skin under a loose-fitting garment. In this situation the skin is subjected to temperatures of 150° to 200°F.

Kairo burn cancer of the Japanese is secondary to the habitual use of a light, tin, portable oven that is shaped to fit snugly against the abdomen in order to maintain body warmth by the generation of heat often for intervals of more than 3 hours. The resulting lesions in both situations are usually typical of squamous-cell carcinoma. Although this is the most common neoplastic alteration in burn scars, basal-cell carcinoma also occurs.[1]

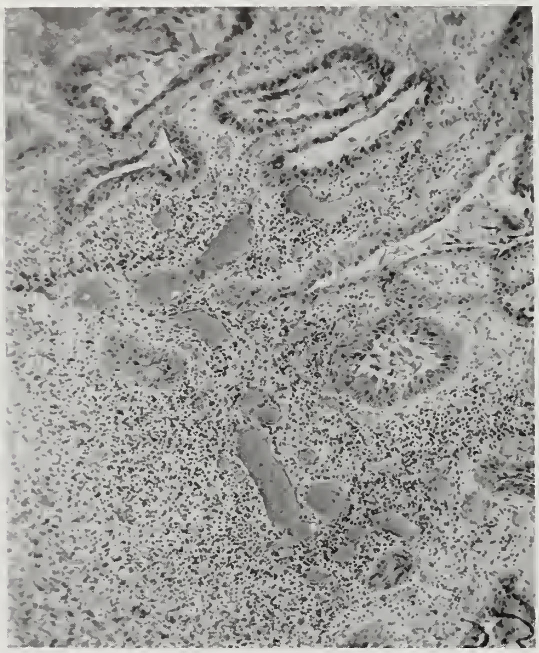

**FIG. 3. Section of tumor showing nuclear atypism.**

Byrd et al[6] reported on neoplasms following a variety of acute and chronic trauma. They affirmed that almost half of the cases in the series were secondary to burns and that over 60 per cent of the group consisted of squamous-cell carcinoma.

The most comprehensive discussion of the lesions has been by Treves and Pack.[1] They observed that 21 of 28 carcinomas which originated in burn scars were squamous-cell, the remainder basal-cell carcinomas. It is of interest that 5 of their cases were neoplasms arising within acute burn scars; here the average time of onset occurred 3 to 4 months after the burn. Three of the 5 neoplasms of acute onset were of the basal-cell type. For those neoplasms with origins in chronic burn scars the average interval between the injury and the onset of carcinomatous changes was 32.5 years; over 90 per cent of these were squamous-cell carcinoma. In their experience 2 per cent of all squamous-cell carcinomas, and .3 per cent of all basal-cell carcinomas began in skin previously subjected to thermal injury.

Clinical observations substantiate the paradox that carcinoma is more likely to develop within a burn scar that involves an area of the body in which epitheliomata occur infrequently. The regions of greater susceptibility as reported by Treves and Pack[1] are the popliteal space, elbow, groin, and arm; here the popliteal space was a relatively more common site.

The postulates established by Ewing to ascertain the relationship of carcinoma to a single trauma should be modified for burns according to these criteria[1]: (1) incontrovertible evidence of the burn, as demonstrated by the wound or the resultant scar, (2) adherence to the law of localities; i.e., the carcinoma must originate within the burned area, (3) the absence of a precursor neoplasm at the site prior to the burn, (4) histologic variety of carcinoma compatible with the tissues normally found in thermal wounds and scars, (5) proper management of the burn scar, including (6) the radical excision of the cicatrix at the first indication of degenerative changes, neoplastic or otherwise.

In summary, there is the obligation for each physician to retain cognizance of the carcinogenicity of burns and to realize that one of the enduring rewards of the appropriate treatment of burns is the prevention of cancer.

The authors wish to express their appreciation for the invaluable assistance of Dr. Lawrence F. Misanik, Director of Laboratories at D.C. General Hospital.

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# PRESIDENT'S PAGE

## THE FUTURE OF THE MEDICAL SOCIETY

The American Physician, in years to come, predicts Dr. John Cotton, President of the New York County Medical Society, will—

Be a qualified specialist working in a group and closely associated with other specialists.

Be an active participant in hospital activities that extend the broadest range of hospital care for the people of the community. (Editor's note: "Womb to tomb" practice of medicine by hospitals on contract.)

Be at least partially salaried.

Will receive at least 75 per cent of the fees paid to him or the institution for which he works from health insurance or welfare funds from Government agencies.

One reason for such changes, he thinks, comes from the developing concept by the public that medical care is a basic human right and not a privilege.

Whether we agree or disagree with Dr. Cotton, one fact stands out to challenge us and with which we cannot disagree: Change—and rapid change—is upon us now, and we must meet this challenge with statesmanship, with knowledge of medical and social economics, and with leadership. This means a strong Medical Society here and in every state and county in the United States. It means active participation by all members either directly or indirectly in Society affairs. In our own Society it means a strong Hospital Relations Committee, a courageous Grievance Committee, an aggressive and imaginative Public Relations Committee, and an informed and fearless Public Health Committee, all of which we now have.

We must continue to have able and conscientious representatives on the Blue Cross-Blue Shield Boards of Trustees to see that our stake in their deliberations is not forgotten.

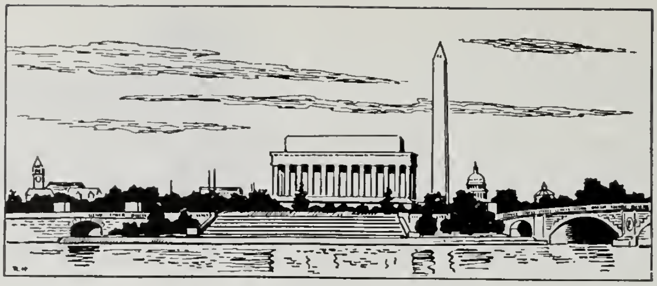
In the field of public relations and improved doctor image (where all those who have read my articles know lies one of my greatest interests) there are many things to be done. Each committee of the Medical Society, I firmly believe, should actively interest itself in original concepts and investigations. Positive programs should be developed as the result of informed thinking by those most knowledgeable about the medical profession—our practicing physicians. An example, of course, is the plan of the Committee on Aging for medical care of the aged under Kerr-Mills. The Health Foundation of D. C., with basic funds derived from our Polio Campaign, may well look into many aspects of public health education, such as the extremely popular Health Fairs of other communities sponsored by medical societies. The problems of alcoholism, mental health, cancer, rehabilitation, chronic illness, air and water pollution should all receive our attention with positive programs. Experts in Government agencies and in the Health Department must carry the burden of planning and implementation and financing, but the physician in active practice has knowledge and experience which should not lie dormant or be ignored. This Society, years ago, was largely responsible for the development of a Department of Public Health in Washington and for many years has played an active role in community health affairs. We must not at any time abrogate our responsibilities in this field.

The public has little knowledge or recognition of our doctors' contribution to their welfare. Do you yourself realize that of our approximately 43 committees about 30 are so concerned? Out of 119 committee meetings held from January through October, 68 related to public health problems.

No doctor in this Society has the time to give proper attention to his or her Society obligation. This Society could do well to have an expert on public relations, employed at least on a part-time basis. Our Executive Secretary and his staff carry a prodigious work load, but they need help to do more for our membership that needs doing. More money is needed for our activities and I hope an increase in dues will accomplish this.

This year has been a most stimulating and satisfying experience for me, and I am grateful for the honor and privilege of having served as your President.

Edward W. Micklas



# EDITORIALS

## The Road to Bethlehem

I DO NOT NEED TO TELL YOU that we are well along the road to Christmas. We have been reminded of this fact time and time again—so many days until Christmas—shopping days, that is—and we know that now we are nearing the day. This moment I want you to think with me not about the road to Christmas but about the road to Bethlehem. Not everyone will take this road, not everyone will walk along this way, not everyone will pursue this path. All who are taking the road to Christmas will not be taking the road to Bethlehem.

There will be those who will come to the end of this season with weary feet and with no sense of the happiness of giving to brighten the lives of others in the spirit of Christ. There will be those who will be busy here and there with elaborate preparations for this day, putting the house in order, decorating the tree, getting ready for the dinner, eagerly planning for a family reunion—and in the midst of all this activity no thought about Him whose birthday we are celebrating.

There will be those looking forward to a holiday, forgetting that it can be and actually ought to be a holy day. There will be many engaged in sending Christmas cards, and yet on many of these cards scarcely a reference to Him but for whom there would have been no Christmas. Many will take the broad road to Christmas, but not too many will take the narrow road to Bethlehem.

Which road are you taking and which road will you take as you approach this great day—the road to Christmas or the road to Bethlehem? In other words, what is Christmas really going to mean to you this year—an observance that adds burdens to an already overburdened life or a shining experience when your faith is alive with new vitality, new meaning and new life? Will we keep Christ in Christmas or will we have another Christmas without Christ?

Henry Van Dyke makes a few observations about "Keeping Christmas":

"It is a good thing to observe Christmas day. The mere marking of time and seasons when men agree to leave work and make merry together is a wise and wholesome custom, but there is a better thing than the observance of Christmas day—and that is Keeping Christmas. Are you willing to forget what you have done for other people and to remember what other people have done for you? Are you ready to ignore what the world owes you and to think what you owe the world? Are you able to put your rights in the background, your duties in the middle distance, and your chances to do a little more than your duty in the foreground? Can you see that your fellow men are just as weary as you are and try to look behind their faces to their hearts hungry for joy? Are you willing to own that probably the only good reason for your existence is not what you are going to get out of life but what you are going to give to life? Are you willing to close your book of complaints against the management of the universe and look around you to see a place where you can sow a seed of happiness? Are you willing to do these things even for a day? Then you can keep Christmas."

This year let us "Keep Christmas." Let us take the road to Bethlehem and kneel in homage and honor before Him whose birthday we are celebrating. Let us give to Him more devotion, more dedication, and we will discover that life for us will become new and different and better; we will find ourselves living with love in our hearts toward all people. It is Christ who makes Christmas. May we let Him make our Christmas for us this year. This will be so if we take the road to Bethlehem.

EDWARD G. LATCH, D.D.
*Pastor, Metropolitan Memorial Methodist Church*

# Committee on Child Welfare[*]

THE COMMITTEE ON CHILD WELFARE, an independent standing committee in recent years, was for a long time a subcommittee of the Committee on Public Health. Its interests lie in all aspects of the health and welfare of children.

Activities range from a consideration of direct action concerning infectious disease and immunization, child safety, food and milk contamination by radioactive fallout, and mental health aspects of child care to more wide-ranging topics such as school health programs, the teaching of health classes in the schools, and the classification of the tax-eligible child patient for care at public expense, and others.

Over the years the chairmen of this committee have represented the Society at negotiations for milk delivery at the time of driver strikes, on liaison committees between school and health personnel, and on technical advisory committees to the D. C. Commissioners' Council on Public Health. One of the Committee's long-time members is presently on the Board of Education of the District of Columbia.

Under the present organization plan the work of this Committee is correlated with that of other committees and with the work of the Executive Board by membership of its Chairman on the Committee on Public Health, whose Chairman in turn sits on the Executive Board of the Society.

Activities in the near future will involve VD control, safety, child abuse laws, and current immunization procedures.

ALLAN B. COLEMAN, M.D.
*Chairman, Committee on Child Welfare*

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[*] This editorial was submitted by the Chairman of this Committee in response to a request from the President of the Medical Society that he describe its functions and activities for readers of the ANNALS.

# Report on Trauma[*][†]

## Tetanus Prophylaxis

THE FOLLOWING is a résumé of the principles of tetanus prophylaxis as published by the American College of Surgeons' Committee on Trauma, the Subcommittee on Prophylaxis against Tetanus.[1] It should be pointed out that all authorities do not agree with the details of tetanus prophylaxis, but there is unanimity of opinion concerning the principles involved.

A. General Considerations

1. Thorough cleansing and adequate débridement of wounds, at times with the wound being left open, are the most important parts of the prophylaxis against tetanus.

2. Antitoxin is not necessary in clean, superficial wounds.

3. When really necessary, the dose of antitoxin should be at least 5,000 units.

4. Individuals with basic immunization with toxoid in the past may have an adequate level of protection recalled by a booster no matter how many years have elapsed since the course of basic immunization (see below).

5. Penicillin and broad spectrum antibiotics in full doses are quite effective against the vegetative form of *Clostridium tetani* which produces the toxin. They must be started promptly and continued for a minimum of 10 days. However, antibiotics should not be used as a substitute for tetanus prophylaxis.

B. Basic Immunization

1. Primary active immunity is obtained by giving 3 doses of alum-precipitated toxoid subcutaneously. The second dose is given 1 month after the first; the third 6 to 12 months later. Periodic booster doses are then given at intervals of 4 years.

2. Infants and children up to 4 years of age receive tetanus toxoid in combination with diphtheria toxoid and pertussis vaccine, given at monthly intervals for 3 doses with a fourth dose 1 year later.

C. Management of Patients Previously Immunized with Toxoid

1. Patients who have received their basic immunization or a booster dose within 4 years are

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[*] This is the third of a series of papers concerning Trauma submitted by the North Carolina Chapter of the American College of Surgeons' Committee on Trauma. The first appeared in the May, the second in the November issue of the MEDICAL ANNALS.

[†] Reprinted by permission from N. Carolina Med. J., vol. 24, no. 4, April 1963. Request for permission was made at the suggestion of Dr. Milton C. Cobey, Chairman, Committee on Trauma, Section III, American College of Surgeons.

[1] Committee on Trauma, American College of Surgeons: The Management of Fractures and Soft Tissue Injuries. Philadelphia: Saunders, 1961.

given 0.5 ml. of alum-precipitated or fluid toxoid subcutaneously.

2. Patients who have received their basic immunization but have not had a booster dose within 4 years of the time of injury are generally adequately protected with a booster dose of toxoid alone. If the wound, however, has a strong possibility of tetanus infection, additional protection can be given for the first few days by the administration of 5,000 units of tetanus antitoxin given in one arm, while with a separate syringe and needle 0.5 ml. of alum-precipitated toxoid is given in the other arm. The tetanus antitoxin is given only if the patient is not sensitive to horse serum (see below).

D. Management of Patients Not Previously Immunized with Toxoid

1. Patients with clean superficial minor wounds in whom passive immunization (antitoxin) is not indicated and who have not been previously immunized with toxoid should have the basic immunization begun immediately.

2. Patients without previous immunization whose wound indicates the need for tetanus prophylaxis should be given 5,000 units of tetanus antitoxin. Using another syringe and needle and in a different extremity, the basic active immunization is begun by giving 0.5 ml. of alum-precipitated toxoid, and arrangements are made to insure completion of the basic active immunization.

3. In patients who are sensitive to horse serum (see below), but who are found not to be sensitive to bovine serum, give 5,000 units of bovine antitoxin.

4. If the patient has a mildly positive or a suspected history of sensitivity or a mildly positive or suspected sensitivity test, administer 0.1 c.c. of a 1:10 dilution of antitoxin subcutaneously, having adrenaline in a syringe ready to use. If no reaction occurs in 30 minutes, 0.1 ml. of undiluted antitoxin is given subcutaneously. If no reaction occurs in another 30 minutes, the remainder of the dose may be given subcutaneously or intramuscularly.

5. If reaction occurs to the above tolerance test, or if there is a clear-cut history of severe reaction to both horse or bovine serums, do not give antitoxin. Human hyperimmune globulin may be given if available, or a transfusion from a donor who has received a booster dose of toxoid 1 month previously. The wound must be adequately débrided and left open. Penicillin or tetracycline must be given promptly, or in full doses, for a minimum of 10 days. As noted above, basic active immunization with alum-precipitated tetanus toxoid should be begun simultaneously.

E. Determination of Sensitivity to Horse or Bovine Serum

1. Prior to the administration of any animal serum, all patients must be carefully examined for possible sensitivity to that serum. The patient must be carefully questioned concerning allergic reactions, such as asthma, eczema or urticaria, or reactions to previous injections of horse or bovine serums.

2. *Skin tests.* From 0.2 ml. to 0.3 ml. of a 1:10 dilution of tetanus antitoxin in saline is injected intracutaneously. A hive-like wheal, with erythema appearing within 15 minutes and measuring approximately 1 cm. in diameter, indicates a sensitivity to horse serum.

3. *Eye tests.* Place a drop of a 1:10 dilution of tetanus antitoxin in the conjunctival sac of one eye at the time the skin test is made. Redness of the conjunctiva occurring in 5 to 10 minutes indicates a positive reaction. If the test with 1:10 dilution is negative and the skin test is positive, the eye test should be repeated with the concentrated tetanus antitoxin. After the result is apparent, a drop or 2 of adrenaline 1:1000 should be instilled in the test eye.

In summary, the best protection against the development of clinical tetanus is adequate débridement and thorough cleansing. In all patients seen, regardless of the reason, the physician has a moral responsibility to see that the patient is actively immunized against tetanus. The use of tetanus antitoxin (passive immunity) lasts only a few days. Simultaneously with the administration of tetanus antitoxin (assuming the patient is not sensitive), using a different needle and syringe and a different extremity, basic active immunization is begun with tetanus toxoid.

# The Pharmacist's Role in Drug Safety

THE FOLLOWING LETTER to the Editor, Donald Prescott, appeared in *The Newsletter* of the American Pharmaceutical Association, May 23, 1964:

DEAR SIR:

From the standpoint of the pharmacist's role in drug safety, I found your article in the April 25, 1964 *Newsletter* concerning a case of proprietary drug abuse very interesting. The article, from MEDICAL ANNALS, reports a case of a 42-year-old man who was ingesting 4 rolls of Tums® a day, and was admitted to a hospital with symptoms including a swollen, red index finger, various pains and calcium deposits in the finger, foot and eyes. The man had gout and hypertension and had been taking hydrochlorothiazide, colchicine, aspirin and Benemid® in addition to the large quantities of Tums.

This was certainly a case where a pharmacist could have contributed to the patient's well-being, but not by merely advising him to limit his intake of Tums.

Benemid, a uricosuric agent, has been termed the "insulin of gout." To prevent attacks, it should be given daily, so we can assume this individual was taking it in this manner.

Aspirin is also a uricosuric agent, when given in doses of 3 to 6 grams, or 9 to 18 tablets daily. However, when aspirin and Benemid are given simultaneously, aspirin antagonizes the uricosuric effect of Benemid. For this reason salicylates are contraindicated in patients receiving Benemid for gout. This information is found in the package insert of Benemid and many of the reference books usually available to any pharmacist.

Consequently, it would seem the duty of the pharmacist to inform the gout patient who is taking Benemid not to take aspirin, or any other salicylate, without consulting his physician. Physicians would appreciate pharmacists informing them of the patient ingesting proprietaries that interfere with their prescribed therapy. Since many patients with gout have arthritic symptoms, the likelihood of their taking a highly advertised product such as aspirin, Anacin® or Bufferin® is very great.

To complicate this patient's case further, hydrochlorothiazide, in common with other thiazide diuretics, may cause elevated serum uric acid levels. Consequently, patients with gout should be supervised closely. This hyperuricemia may be reversed by an effective uricosuric agent; however, if the patient is offsetting the uricosuric action of Benemid by taking salicylates, this undesirable effect of the thiazide may occur.

Here we have a case of a triple therapeutic incompatibility, in which the patient might have been better off taking no drugs. The villain in this case however is the aspirin. This is precisely why only pharmacists should dispense aspirin; a checkout clerk in a supermarket (or pharmacy) would not know that the patient was on Benemid for gout, and even if he did, he would still ring up the sale.

This incompatibility was not referred to in the article, but the red, swollen index finger might bear some relationship to gout.

The point to be gained from this is that it would be highly desirable for patients with long-standing chronic conditions such as diabetes, gout, asthma, arthritis, etc. to have one pharmacist as well as one physician to avoid some of the pitfalls of combination of legend drugs with proprietaries. The APhA proposal to reclassify drugs into 4 classes would be a step in this direction.

GERALD M. BLESSINGER, R.Ph.
*West Allis Memorial Hospital*
*West Allis, Wisconsin*

# Residencies in Psychiatry Available at Georgetown

GEORGETOWN UNIVERSITY Medical Center has available residencies in psychiatry for general practitioners and other practicing physicians. Its Department of Psychiatry is approved by the American Psychiatric Association for 3 years of training, leading to Board-certification.

Expanded grant support is offered at an adequate level to stimulate the interest of qualified physicians who wish to become psychiatrists. Training stipends, appropriated by the National Institute of Mental Health, are granted for the 3 years of the residency program. The applicants usually qualify for the maximum stipend of $12,000 yearly.

To be eligible for this program, a physician must have been in practice for a minimum of 4 years following internship (which may include time in the Armed Forces or residency training in some specialty other than psychiatry). Additional requirements are graduation from an approved medical school, 1 year of approved internship, and American citizenship.

Applicants should contact Dr. Richard A. Steinbach, Department of Psychiatry, Georgetown University Medical Center, 3800 Reservoir Road, N.W., Washington, D. C., 20007, for the residency program starting July 1, 1965.

# The Washington Psychiatric Society

In 1953, when the Washington Psychiatric Society was going into its fifth year, it was considered appropriate to set down a few words about the Society's beginnings, its aims, and its early accomplishments before the all-too-human memories of its founders began to fade. These historical notes originally appeared as an editorial[1] in the Annals for May 1953 and were reprinted the same year in modified form in the fourth edition of the Directory of Psychiatrists in the Washington Area. These present notes have been further revised and brought up to date.

Following World War II Washington became an active center for psychiatric training, research and practice. Training centers at Saint Elizabeths Hospital, Walter Reed, and Bethesda attracted large numbers of young men both in and out of military service. Research projects were carried on in the hospitals, the medical schools, and under various private auspices. The number of psychiatrists in private and hospital practice increased rapidly. In 1948 the first Directory (then a private endeavor) listed the surprising total of 230 area psychiatrists and pointed out the need for a unified professional organization. By 1964 the number of psychiatrists in the Metropolitan Washington Area had grown to 540!

Unlike Gaul, which was divided into only 3 parts, Washington psychiatry in 1948 was divided into 4 different societies, none of which was completely representative. The most senior group was the Section on Neurology and Psychiatry of the Medical Society of the District of Columbia. The other 3 were the Washington-Baltimore Psychoanalytic Society (now the Washington Psychoanalytic Society), the Society for the Advancement of Psychotherapy, and the Medical Society of Saint Elizabeths Hospital. Each society had its own meetings and its own orientation. As a result the meetings became so numerous that the quality of the programs was diluted and attendance dwindled.

It was at this stage that a group of 24 Washington psychiatrists representing each of the existing societies met to study this problem. The initial meeting was held on January 6, 1949 in the library of the Medical Society's building. A committee of 6* (who were destined to become the "founding fathers" of the new group) proposed that a new society be formed, to be named "The Washington Psychiatric Society."

At its first organizational meeting on February 10, 1949, a constitution was adopted which made membership available to all doctors of medicine specializing in the field of psychiatry. Articles of incorporation under the laws of the District of Columbia, identifying the Society as a nonprofit scientific and educational body, were taken out in the early summer of 1949.

In May 1949 the Society was accepted as a duly accredited Affiliate Society of the American Psychiatric Association. In 1953 a new, but overlapping professional organization was formed which sought and secured status as a District Branch of the American Psychiatric Association. Two years later the Metropolitan Washington District Branch of the American Psychiatric Association was formally merged with the senior organization. The constitution was revised, permission was secured from the American Psychiatric Association to retain the name "The Washington Psychiatric Society," and the merged group then took over the functions of both organizations.

Members of the local group have been unusually active in the affairs of the American Psychiatric Association. The list of our past and present members includes 4 past presidents of the parent organization, a former Speaker of the Assembly, its past and present medical directors, members of its Council, and chairmen of some of its most important committees. Our delegates to the Assembly of District Branches have taken active part in shaping the policies and broadening the scope of the Assembly.

Although participation in the activities of the national organization has been rewarding, the main purpose of our Society has been "to represent psychiatry and foster its progress in the Washington area."

In what ways have these objectives been pursued? First, and foremost, the Society has succeeded in providing an outstanding scientific program. A list of past speakers would read like a "Who's Who in American Psychiatry." On several occasions the 400 seats in the Medical Society's auditorium (where the meetings are held) have been filled. It is the established policy of the Society that all scientific meetings are "open." All physicians and specialists in related fields have always been welcome. Another important policy has been to establish and maintain the closest possible relations with the Medical Society of the District of Columbia and the several County Medical Societies in the Metropolitan Area. In this way it has also promoted closer relationships between psychiatry and other branches of medicine. By making many of its meetings "joint" (i.e., under the combined sponsorship of 2 or even 3 societies) the total number of psychiatric meetings has actually been reduced and the quality improved.

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[1] Lebensohn, Z. M.: The Washington Psychiatric Society. Med. Ann. D.C., 1953, 22, 249.

* Organization Committee: Dr. Addison M. Duval, Chairman; Drs. Norman Q. Brill, Henry P. Laughlin, Zigmond M. Lebensohn, Philip Litvin, and Robert T. Morse.

One of the earliest and most successful projects of the Society was the publication of "The Directory of Psychiatrists and Clinical Psychiatric Facilities in the Washington Area," which was originally conceived and carefully maintained through 5 editions by Dr. Henry P. Laughlin, a co-founder and Past President. This useful Directory has proved well-nigh indispensable to local psychiatrists, social agencies and many physicians.

An essay contest for psychiatric residents-in-training sponsored by the Society in 1951 (and continued intermittently since then with the added inducement of a $100.00 prize) has produced some excellent scientific papers. This contest has helped to stimulate and encourage psychiatric research among the younger members.

As the Society has grown in size and strength it has concerned itself more and more with community problems. This is now reflected in its committee structure and the ever-increasing responsibilities of the Council.

Within recent years, for example, the Society has concerned itself with such matters as improving the counseling services of the public schools, promoting psychiatric services in general hospitals, testifying before legislative committees of Congress, exploring the relationship between psychiatry and religion, improving the relations between psychiatry and law, and studying the problem of the alcoholic patient. Its various committees have coöperated constructively with other professional groups, such as the D. C. Bar Association, and with lay groups, such as the D. C. Mental Health Association.

We have mentioned only a few of our more concrete achievements. Many other projects have been completed and many more are in progress.

As important as our list of accomplishments has been the establishment of an excellent *esprit de corps* among Washington psychiatrists. This has been due to many factors. Important among these has been the monthly *Newsletter* which has filled a great need by disseminating information of local interest. The Annual Dinner Dance has become a keenly anticipated social event in psychiatric circles. The social hour following the scientific sessions has provided an excellent opportunity for the members to get to know each other, for the younger members to meet their seniors, and for the newcomers to be welcomed by the old-timers.

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Finally, and most importantly, the Society has tried to provide a local forum where all aspects of psychiatry can be discussed, to build a scientific group which can relate itself constructively to the rest of medicine and to the community, and to form an organization which is truly representative of psychiatry in the best sense of that word.

Zigmond M. Lebensohn, M.D.

# Health Dept. Notes

### New Mental Health Program for D.C.

The D.C. Department of Public Health's new program for mental health organizes the District of Columbia into 4 major areas, establishes a Community Health Center in each, and stresses care of the patient in his own environment.

Area A includes most of the northwest section of the city and has a population of about 140,000. Area B includes the central and some of the northwest and northeast, with a population of 240,000. Area C includes much of the northeast and southeast sections and has 240,000 residents. Area D includes the region east of the Anacostia River, with 130,000 people.

Each area served by a Community Mental Health Center will be related to a major hospital facility: Area A, Georgetown University and George Washington University, location unde-

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cided; Area B, Howard University and its planned 500-bed hospital, with pediatric mental services in coöperation with Children's Hospital; Area C, on the grounds of D. C. General Hospital; Area D, at Saint Elizabeths Hospital.

In addition to mental health, each Community Center would provide mental retardation and public health services to its area residents.

Each Community Mental Health Center is to offer a full range of services to children, adolescents, adults, the elderly and to drug addicts and alcoholics. The new Plan is intended to provide service to the patient as close to home as practicable and to avoid placement in an institution when possible. Centers would operate in the evenings and on Saturdays, as well as during the normal work day. Emergency services, such as suicide prevention, would be available at all times of the day or night.

The Plan also calls for 'partial hospitalization' by which certain patients take part in activities at the Centers during the day and return to their homes each evening. Others could be treated at the Centers in the evening or on weekends without interfering with work and domestic routines.

Placement of the mentally or emotionally disturbed in an institution would be done only when necessary and for only as long as indicated, in the best interests of the patient. After intensive institutional care, however, the patient might not be ready for complete return to his home or even for day-care or partial hospitalization. For this, the Plan suggests development of group homes, halfway houses, nursing homes and other residential facilities.

In addition to the 4 major Centers planned for each area, it is proposed there be small 'satellite centers' or clinics within each area, offering rehabilitation and clinic services on a neighborhood basis. These would relate to and derive from the parent Center.

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Certain services are retained as central to the District of Columbia itself. These include care of chronic psychiatric and prisoner patients at Saint Elizabeths and intensive inpatient treatment of chronic alcoholics and addicts.

It is recommended that the first of the Community Mental Health Centers be developed at D. C. General Hospital, using some present facilities and reassigning medical and nursing staff. There is a known need for such services in Area C; almost 45 per cent of the mental care in the District relates to that Area's population.

The new Mental Health Plan encourages participation of physicians and psychiatrists in the District through patient referral and program development. A close relationship is anticipated between the Department staff and medical practitioners in D.C.

In addition to direct patient service, each Center is to develop programs in research, training and education through its ties with District teaching hospitals and schools of medicine. This will bring medical faculties, staffs and students into the Plan's operation and ensure a high level of patient care and service.

MURRAY GRANT, M.D., D.P.H.
*D. C. Director of Public Health*

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# The Washington Medical and Surgical Society

THE WASHINGTON Medical and Surgical Society is a non-profit, educational and scientific organization which offers the professional and social advantages of affiliation to qualified physicians in Washington, D. C., Maryland, and Virginia. It is believed to be the oldest of the smaller, independent, so-called "Dinner Medical Societies" which have functioned continuously in the Greater Washington Area. It is the senior of the 2 medical honor societies in Metropolitan Washington.

The Washington Medical and Surgical Society was founded on January 4, 1897, just 6 months and a day following Congressional enactment of the Medical Practice Regulations for the District of Columbia (June 3, 1896). Fifteen leading Washington physicians signed the Certificate of Incorporation, as recorded April 23, 1900, namely, Drs. Noble P. Barnes, G. C. Clark, Francis H. Miner, Francis W. Braden, H. S. Medford, C. E. Ferguson, Lewis J. Battle, W. Ashby Frankland, Jesse Shoup, J. R. Nevitt, J. W. Hart, H. T. A. Lemon, W. P. Reeves, C. S. Keyser, and A. B. Hooe. Of these Founding Fathers, Dr. Barnes was President, Dr. Hooe Vice President, Dr. Shoup Secretary, and Dr. Medford Treasurer.

Membership in the Society is limited to 60 Active members. Deemed a privilege and an honor, such status is conferred by election and invitation only. The bases for candidacy include "medical contributions, professional leadership, and superior qualifications in one's field of medical specialization." Throughout the Society's 68-year history, 210 Washington area physicians, graduates of 38 medical schools and representatives of all of the medical and surgical specialties, have received such recognition, an average of 3 per annum. Eighty-four of these have subsequently been named Fellows after contributing a minimum of 10 years of required service to the Society. Twenty-seven Honorary members have been named to date.

The membership rolls of the Society over the years include the names of so many distinguished physicians in the Washington medical community as to almost suggest its being a leadership roster of Washington medicine. This is also reflected, of course, in any listing of those who have served as officers of the group. Space does not permit a recounting of the professional achievements and community contributions of outstanding members because many, if not all, might well deserve such mention. Interestingly, there have been several father-son memberships. In view of his long and devoted service as an officer of the Society for over 46 years, Dr. Frank E. Gibson, Sr., who served as Treasurer from 1903 to 1933 and from 1936 to 1953, does merit special mention. An annual award named for him is granted for "outstanding achievement in medicine." The official seal and the certificates of the Society were designed by Dr. Henry P. Laughlin and adopted in 1962.

The current leaders of the W.M.S.S. include: Dr. Joseph J. Wallace, President; Dr. John H. Bayly, Vice President; Dr. James H. Scully, Secretary; and Dr. Peter Paul Andrews, Treasurer. The Society Handbook Editors are Drs. Laughlin, A. F. Castro, and Harold Heiges.

The Washington Medical and Surgical Society holds 6 dinner meetings each year. These are characterized by conviviality and warm friendship. For some years they have been held at regular intervals at the Army and Navy Town Club. In addition to the fine fellowship these meetings offer, they provide the opportunity to hear an outstanding scientific presentation on a topic of current medical interest and to participate in a stimulating discussion.

An Annual Outing is held each May at a country club which offers sports participation for those who so desire; this provides an excellent social event for members and their guests. On this occasion the official membership parchments are awarded to newly elected members, and the recipient of the Gibson Prize is announced. As a matter of established policy, guests of members are welcome at all meetings of the Society, and members are encouraged to bring their friends and colleagues whenever possible.

HENRY P. LAUGHLIN, M.D.
*Historian*

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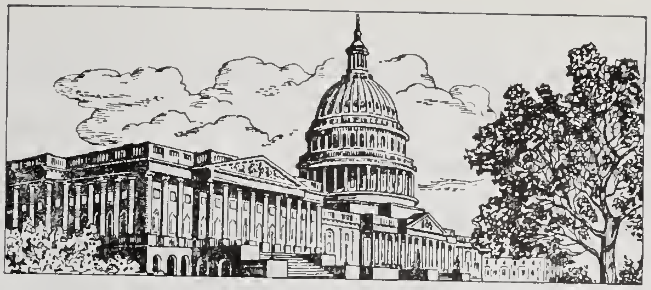

# NEWS & PERSONALS

## Summary of Executive Board Actions

**The Executive Board of the Medical Society of the District of Columbia** held its regular meeting on October 26, 1964, in the Society's building. Dr. Victor R. Alfaro, Chairman, presided. Members present were Drs. C. Willard Camalier, Jr., Karl C. Corley, J. Spencer Dryden, Raymond T. Holden, Edward W. Nicklas, Josephine E. Renshaw, Duane C. Richtmeyer, Paul R. Wilner, and Mr. George Cooley, Secretary. Present by invitation was Mr. Warren Magee, the Society's legal counsel. The meeting was called to order by the Chairman at 7:30 p.m.

**Committee Meetings:** The Secretary reported that the following committee meetings had been held since the last meeting of the Board:

| | | |
|---|---|---|
| September | 29 | Scientific Assembly Publicity and Program Committees |
| | 29 | Subcommittee on Medicolegal Problems with representatives of St. Paul Mercury Insurance Co. |
| October | 2 | Review Board for Prepaid Medical Care Benefits |
| | 6 | Committee on Medical Care |
| | 8 | Committee on Medicolegal Problems |
| | 19 | Tellers |
| | 19 | Committee on Mental Health |
| | 20 | Grievance Committee |
| | 23 | Nominating Committee |

**Board of Credentials:** The Executive Board approved the following recommendations of the Board of Credentials:

*Active Members*

David Kip Berler, 1712 Eye Street, N.W.
Frank Joseph Borsody, 915 19th Street, N.W.
Robert Ellwood Collins, 1835 Eye Street, N.W.
Richard Steele Guy, 4319 Deane Street, N.E.
Thomas Francis Magovern, 3800 Reservoir Road, N.W.
William Schwartz, St. Elizabeths Hospital
Steele Fuller Stewart, Jr., 2121 Pennsylvania Avenue, N.W.
Felix VonMendelssohn, St. Elizabeths Hospital

*Associate Members*

Edward Joseph Connor, 4400 Stamp Road, S.E.
Donald Pettus Conwell, 1372 4th Street, S.W.
Oscar Irving Dodek, Jr., 8218 Wisconsin Avenue, Bethesda, Md.
Herbert Stelwyn Gates, Jr., 248 Elm Street, McLean, Va.
Warren Vincent Huber, Veterans Administration Central Office
Herbert Louis Kotz, 8218 Wisconsin Avenue, Bethesda, Md.
Benjamin Maldonado, Jr., 6110 43rd Avenue, Hyattsville, Md.
Kenneth Charles Nieberg, Walter Reed General Hospital
Raymond John Parisi, 3611 Branch Avenue, Hillcrest Heights, Md.
Kent Albrecht Peterson, 8218 Wisconsin Avenue, Bethesda, Md.

*Resident-Intern Member*

Michael W. A. Ivy, Freedmen's Hospital

*Transfer*

*Affiliate to Active:* John R. Weimer

*Reinstatements*

*Active:* Arthur R. Bergman and Jesse B. Hopkins

*Resignation*

*Associate:* Scholem P. Feldstein

**Review Board for Prepaid Medical Care Benefits:** At the meeting of the Board, September 28, the Secretary distributed a proposal for the reorganization and operation of the Review Board. In view of Dr. William H. Ferguson's statement at that meeting and his subsequent request to appear before any subcommittee considering the Review Board's functions, the Executive Board voted that the President appoint an Ad Hoc Committee to review the question of Major Medical insurance and the functions of the Review Board in reference to such insurance coverage. It also authorized this Committee to call upon such persons as could be of assistance. The Board requested that the Committee report back to the Board.

**Board of Education Budget:** At the request of Drs. Preston A. McLendon and Hugh G. Clark that the Society give its support to the D. C. Board of Education budget, the Board voted that a letter be written to the District Commissioners urging support for the 1966 School Budget as submitted by Superintendent of Schools Carl F. Hansen.

**Kober Lecture:** Upon notification that the Society has the privilege of selecting a speaker for the next Kober Lecture, scheduled for March 1965, the Board selected a committee of 3 to propose a speaker for this occasion. Appointed to this committee were Drs. Nicklas, Wallace M. Yater, and William P. Herbst.

**Committee on Hospital Relations:** This Committee requested that the Commission on Accreditation of Hospitals be contacted by the Executive Board in order to ascertain its policies on restricting hospital staff appointments to Board-certified physicians.

The Committee on Hospital Relations reported that at its invitation Dr. Yater and Dr. Paul Jaquet appeared before one of its meetings to present information with examples concerning the writing of staff orders by private physicians in some teaching hospitals. At the same meeting reports from the deans of the 3 medical schools regarding this problem were reviewed. Following some discussion the Executive Board recommended that instead of contacting the Commission on Accreditation of Hospitals, as suggested by the Committee, a small subcommittee of the Hospital Relations Committee arrange conferences with the deans of the medical schools and/or appropriate chiefs of the services concerned to discuss this entire problem in an attempt to ascertain ways and means for eliminating some of the situations which have occurred recently.

**Nominations to the Board of Trustees of Medical Service of D.C.:** The following nominees were approved: Drs. Alfred Brigulio, Frank S. Pellegrini, and Leonard T. Peterson, to succeed themselves. Their terms will extend for a 3-year period.

**Editorial Board of Medical Annals:** Upon the recommendation of Dr. Yater, Editor of the Medical Annals, the Board approved the appointment of Dr. Zigmond M. Lebensohn to the Editorial Board. He succeeds the late Dr. Winfred Overholser.

**Public Health Policy Guide:** The Secretary reported that the American Medical Association has modified its previous policy on Public Health Department activities and, in view of this, the statement to go to the membership should be altered or withdrawn. The Board decided to approve the guidelines, as revised to conform with the AMA policy, and to submit them to the membership at the Annual Business Meeting. If approved, copies should be distributed to the District Committees of Congress and to others concerned with local Public Health problems.

**Medical Practice in Medical Arts Buildings:** At its meeting, June 29, the Board approved the selection of 9 physicians to evaluate a questionnaire which was sent to physicians in Medical Arts Buildings. These appointments were made at the request of the Public Health Service, which is conducting a pilot study of the organization of medical practice in Medical Arts Buildings. This portion of the study has been completed and Mr. Gerald Katz, Senior Assistant Health Services Officer, now requests permission to mail a revised questionnaire with a covering letter on the Society's letterhead signed by its President. Drs. Dryden and Camalier, who were among the 9 physician appointees, commented on their experience, which was favorable. The letter submitted by Mr. Katz was approved with one change, and the President was authorized to sign it. The letter and questionnaire will be sent to 580 physicians in 16 Medical Arts Buildings.

**Representatives to National Meetings:** Dr. Paul Kiernan will be invited to represent the Society at a Conference on Blood and Blood Banking, sponsored by the American Medical Association, to be held in Chicago, December 11 and 12. Dr. W. Ronald Strong will be asked to represent the Society at a National Conference on Disaster Medical Care, also sponsored by the AMA, to be held in Chicago, November 7 and 8.

**Tax Status on Eye Street Property:** At the request of the legal counsel, Mr. Magee, the Board voted to authorize him to request tax-free (real estate) status on the Eye Street property recently purchased by the Society for its new building. The Secretary reported that final plans for the new structure were to be discussed on November 4 and that it was expected that plans for securing bids were to be ready on November 10.

There being no further business, the meeting was adjourned.

## Meetings

**The Washington School of Psychiatry** issues an invitation to members of the Medical Society of the District of Columbia to attend a scientific meeting, December 11, at 8:30 p.m., when Dr. Earl Witenberg, Director of the William Alanson White Institute of Psychiatry, Psychoanalysis and Psychology of New York City, will present a report on the Institute's training program. The meeting will be held in the auditorium of the School of Psychiatry, 1610 New Hampshire Avenue, N. W.

**The Washington Psychiatric Society** will meet on January 22 in the Medical Society's auditorium. Dr. John D. Schultz, Associate Director of D. C. General Hospital, will be the speaker; his subject, "Community Mental Health."

## General News

**The American Academy of Facial Plastic and Reconstructive Surgery, Inc.** was formed in Chicago, October 18, through the merger of 2 national associations of otolaryngologists, the American Otorhinologic Society for Plastic Surgery, Inc. and the American Society of Facial Plastic Surgery, Inc. The merger was accomplished with the assistance of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology. Expected to include approximately 700 physicians, the Academy will consist mainly of otolaryngologists who perform plastic and reconstructive surgery of the head and neck. Elected President of the new group was Dr. Irving B. Goldman, of New York. The President-elect is Dr. John T. Dickinson, of Pittsburgh.

**The Angiology Research Foundation,** of New York City, announced, October 19, the **recipients of the 1964 Honors Achievement Awards** which recognize the most significant research contribution made both by the researcher and his institution toward the achievement of angiology.

The award recipients included the following: Drs. Peter W. Conrad, George C. Hajjar, Charles A. Hufnagel, Kenneth M. Moser, Stephen B. Sulavik, and Bernard J. Walsh of Georgetown University School of Medicine; Drs. Frank J. Fedor, Edward D. Freis, Edward D. Frohlich, and Mr. William Leahy, of the Veterans Administration Hospital; Dr. Jan Cammermayer of the National Institutes of Health; and Dr. Esther Hardenbergh of the Naval Medical Center.

The respective institutions were also cited for their support of the research.

**The American Association of Medical Assistants** drew an attendance of 488 at its Eighth Annual Convention in Oklahoma City, October 13–18. This was an all-time high registration. Its House of Delegates took the following actions: pledged organizational support and assistance to the AMA in all legislative matters pertaining to the practice of medicine as a free enterprise; endorsed the objectives of AMPAC, urging local and individual assistance; and expressed its gratitude to the AMA for "its incessant aid and support."

At the annual business meeting of the **Rheumatism Society of the District of Columbia,** June 10, the following officers were elected:

Dr. Alfred Baer, *President*; Dr. Thomas J. Pekin, *Vice President*; and Dr. Antoinette F. Popovici, *Secretary-Treasurer.*

New members of the Executive Committee are Dr. William R. Felts and Dr. James A. Kehoe.

**Sibley Memorial Hospital Association** elected the following officers at its annual meeting, October 22:

Dr. Everett J. Gordon, *President*; Dr. John W. Price, *Vice President*; Dr. Albert J. Miele, *Secretary*; and Dr. Herbert S. Gates, *Treasurer.*

The Association recently refurnished the Doctors' Lounge on the first floor and in Obstetrics and is refurnishing the Doctors' Surgical Lounge.

**"Pulmonary Disease Research in the Veterans Administration"** is the title of a pamphlet recently released by the VA Research Service as the first of a series to detail various fields of medical research in progress by VA's Department of Medicine and Surgery. Copies may be ordered without charge from Research Service, Veterans Administration, Washington, D. C. 20420.

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**Mr. George B. McGovern,** Executive Vice President of Medical Service of the District of Columbia, has been elected to the Board of Directors of the National Association of Blue Shield Plans as the representative of District V. The election took place at the annual joint meeting of Districts V and VI, Blue Cross and Blue Shield, which was held, October 5–7, at Key Biscayne Hotel in Miami, Fla. **Mr. F. P. Rawlings, Jr.,** President of Group Hospitalization, Inc., will serve as Chairman of the Nominating Committee for the ensuing year. Mr. Robert C. Denzler, of Richmond, Va., succeeded Mr. Rawlings as Chairman of District V.

**Dr. Robert H. Felix,** who retired, October 1, as Director of the National Institute of Mental Health to become Dean of Medicine at St. Louis University, was one of the 3 winners, October 8, of the 1964 Bronfman Prizes. Recipients of these awards, which consist of $5,000 each, are chosen by the American Public Health Association for outstanding international accomplishments in developing new knowledge to prevent disease and extend life expectancy.

**Project Hope** moved its offices on November 1 to 2233 Wisconsin Avenue, N.W. (20007). The telephone number remains the same—338-6110.

## Personals

**Dr. Felix D. Paolucci** has been elected Chief of the Medical Staff at Providence Hospital. Dr. Paolucci, a graduate of Georgetown University School of Medicine, interned at Providence and took postgraduate training in surgery at Providence. During World War II he was on active duty with the U. S. Navy, from 1943 to 1946.

**Dr. J. Spencer Dryden** was reëlected Vice President of the National Medical Foundation for Eye Care at the annual meeting of the Foundation's Board of Trustees, in Chicago, October 18. Dr. Harold F. Falls, of Ann Arbor, Michigan, was elected President.

**Dr. Leroy E. Burney,** Vice President for Health Sciences of Temple University, Philadelphia, has been appointed to one of 4 review committees to consider applications for construction grants from medical, dental, and nursing schools, and schools of public health. The recommendations of these committees are considered by the National Advisory Council on Education for Health Professions, which presents its proposals for grant awards to the Surgeon General for final action. Each of the committees is composed of leading authorities in their respective professions. Dr. Burney is on the committee which will be concerned with schools of public health. He is an Honorary member of the D. C. Medical Society.

## Psychiatrists in the United States

A TOTAL of 16,863 psychiatrists are in active practice in the United States, representing a new high in this medical specialty, according to a tabulation by the American Psychiatric Association and the National Institute of Mental Health.

The number of all licensed physicians in the country is 267,950, of whom approximately 6.3 per cent are psychiatrists.

New York State has attracted the largest number of psychiatrists, where 3,690, or 22 per cent of the total, are in active practice. California is second in the number of psychiatrists, with 2,100 reported. The District of Columbia ranks twelfth, with 346 listed.

In several Western states relatively few psychiatrists are engaged in active practice. Listings show Wyoming, 12; Idaho, 14; Nevada, 15; and Montana, 17. Alaska is the state in which the smallest number of psychiatrists is listed, with a total of 9.

The new count of psychiatrists substantiates knowledge which has been accepted for some years among medical professionals that a growing number of physicians have chosen to enter this key mental health specialty. In 1948, when Federal support of psychiatrist training was first made available, the total membership of the APA was 4,678. Data on other psychiatrists were not then available.

Today the membership in the professional organization numbers approximately 14,000. It is estimated that of all the medical students enrolled today, 9.4 per cent of them enter psychiatric residency training.

Approximately 2,000 training stipends in the specialty were awarded through Federal financial support this year, and other factors were cited by the Public Health Service as contributors to the growth in the number of psychiatrists in the Nation. These include increased state support of residency programs, and increased professional opportunities for psychiatrists in the expanding national mental health program.

# Obituaries

## Winfred Overholser, A.B., M.D., F.A.P.A.

(1892–1964)

Dr. Winfred Overholser died on Tuesday, October 6, 1964, at the age of 72 after an illness of several months. He was one of the elder physician-statesmen in the D. C. area and one of the most influential members of the Medical Society of the District of Columbia.

Dr. Overholser was a crusader for human rights—in his words, "For better human beings in a better world." He was an authority in the special field of psychiatry and the law. Dr. Overholser was a distinguished professor of psychiatry who inspired his physician students who came to him from all over North, Central, and South America. He was a great leader in the American Psychiatric Association. As a renowned hospital administrator he championed the improvement of mental hospitals and strove for the practice of quality medicine.

He was a big, booming man with a sense of humor and a zest for living—a good and kindly person who loved his family, his friends, and his neighbors.

The first Overholsers came to America about 1728 from Switzerland and settled in Lancaster County, Pennsylvania. His father, Edwin M., moved to Massachusetts in 1880. Winfred was born on April 21, 1892 in Worcester, Massachusetts; attended the public schools in Wellesley and graduated from Harvard *cum laude* in the Class of 1912. He attended Boston University School of Medicine, received his M.D. in 1916. His first position in Government service was in the Westboro (Massachusetts) State Hospital. In February 1918, as a First Lieutenant in the U. S. Army, he was assigned in France to a treatment center for war neuroses. On returning from his military service he married Dorothy Stebbins of Worcester on June 4, 1918.

In the years that followed he served in various capacities at the Westboro, Gardner and Medfield State Hospitals. At Medfield he became Commander of the local American Legion Post. This marked the beginning of a lifelong active participation in the American Legion. He was Chairman of its National Medical Advisory Board at one time.

WINFRED OVERHOLSER, M.D.

Dr. Overholser became the first fully qualified Commissioner of the Department of Mental Health in Massachusetts. Here, he developed his interest in forensic medicine. This culminated in his receipt of the first Isaac Ray Lectureship Award. The lectures were delivered at his Alma Mater, Harvard, on Psychiatry and the Law.

In 1937 he became Superintendent of Saint Elizabeths Hospital, a post he held for 25 years. There he made many outstanding contributions, including service to the Navy; the first training of chaplains for work in mental hospitals; the training of psychiatrists and nurses; and the establishment of research laboratories for the investigation of psychiatric disorders. During his administration, insulin therapy, electroshock therapy, group therapy, drug therapy, and the first psychodrama were introduced.

Dr. Overholser was Professor of Psychiatry at George Washington University, a post he held from 1938 to 1959. He received honorary degrees from George Washington, St. Bonaventure and Boston Universities. He was a prolific writer contributing more than 250 articles and 2 books to the scientific literature. He had served continuously on the Editorial Board of the Medical Annals since his appointment to the Board in 1943.

His participation in research in schizophrenia led to his appointment as chairman of the research activities of the National Association for Mental Health and of the Masonic Order.

In the field of psychiatry he held its highest offices. He was Secretary of the American Psychiatric Association from 1941 to 1946 and President during the year 1947 to 1948. He was Chairman of the Committee on Psychiatry and the Law, the founder of the Section on Forensic Psychiatry, the Chairman of the Committee on Certification of Mental Hospital Administrators, and senior member of the Board of Consultants to the Mental Hospital Service.

Dr. Overholser had many community interests and many other professional concerns, too numerous to recapitulate here. His influence and his sage advice will be sorely missed by his colleagues.

Dr. Overholser is survived by his wife, Dorothy, who lives at 4740 Connecticut Avenue, N.W.; his son, Winfred, Jr., a psychiatrist in private practice in New York City; and 2 daughters, Mrs. D. Richard O'Meara, of Stamford, Connecticut, and Mrs. C. Robert Elliott, of Fairborn, Ohio.

Walter E. Barton, M.D.
*Medical Director, American Psychiatric Association*

## James Augustin Flynn, M.D., F.A.C.S.

### (1874–1964)

Dr. James A. Flynn, otolaryngologist in Washington for more than 40 years, died, September 26, 1964 in Baltimore. For most of those years he lived and maintained his offices at 1511 Rhode Island Avenue, N.W. He was a Life member of the Medical Society of the District of Columbia.

Dr. Flynn was born in Boone, Iowa, January 28, 1874. After studying biology at the University of Notre Dame, he enrolled in the School of Medicine at Georgetown University, graduating in 1898. He interned at Georgetown Hospital the following year. For training in his specialty he studied at the New York Polyclinic, the University of Bordeaux, France, and at London General Hospital.

He began his practice in the District of Columbia in 1904. He was on the hospital staffs of Providence, Georgetown, Emergency, Children's and Garfield for many years. He was at one time Associate Professor of Otolaryngology at Georgetown and also had served on the faculty of George Washington University as Instructor in Otolaryngology.

Dr. Flynn was a diplomate of the American Board of Otolaryngology. He was a Fellow of the American College of Surgeons and a member of the American Academy of Otolaryngology, the American Medical Association, and the French Society of Oto-Rhino-Laryngology. He was elected to membership in the Medical Association (which later merged with the Medical Society) of the District of Columbia in 1905. He was the first President of the Notre Dame Club of Washington.

He leaves his wife, Mrs. Antoinette R. Flynn, of the home address, 1601 Argonne Place, N.W., and a daughter, Mrs. Eleanor Flynn, of Wellesley Hills, Mass.

## Joseph Milton Rom, B.A., M.B., M.D.

### (1908–1964)

Dr. Joseph M. Rom, practicing psychiatrist for more than 15 years, died suddenly, September 28, 1964. His home was at 3300 Brooklawn Court, Chevy Chase, Md.

Dr. Rom was born in St. Paul, Minn., July 3, 1908. He earned 3 degrees from the University of Minnesota, B.A. (1929), M.B. (1932), and M.D. (1933). He interned at the General Hospital of Fresno County, California.

Immediately after receiving his medical degree he enlisted in the U. S. Army. Four years of his service were spent in Puerto Rico. He was discharged from the Regular Army with the rank of Major at the end of World War II.

After the War Dr. Rom returned to Minnesota for postgraduate study in neuropsychiatry at the University of Minnesota. Subsequently he moved to Baltimore to serve a 2-year residency at the Sheppard and Enoch Pratt Hospital in Towson, Md., from 1946 to 1948. In September of the latter year he began the practice of psychiatry in the District of Columbia. His offices were last at 2430 Pennsylvania Avenue, N.W.

He was certified by the American Board of Psychiatry and Neurology. He was a Fellow of the American Psychiatric Association, a member of the American Medical Association, and an Active member of the D. C. Medical Society since 1949. He was also a member of the Washington Psychiatric Society.

Surviving him are his wife, Mrs. Betty Rom, and 2 children, Betsy and Daniel.

## Irving Wolfe Winik, M.D., F.A.C.P.

(1912–1964)

Dr. Irving W. Winik, internist, died, October 14, 1964 at George Washington University Hospital.

Dr. Winik was a Washingtonian, born October 20, 1912. He was a graduate of old Central High School and of George Washington University School of Medicine, where he received his medical degree in 1937. He interned at Gallinger Municipal (now D. C. General) Hospital for a year following graduation and spent another year there as resident physician. He was granted one of the first Fellowships in Medicine at George Washington University, under which he studied from 1939 to 1941.

Dr. Winik served for many years on the teaching staff of George Washington University School of Medicine. He was on the medical staff of D. C. General Hospital.

Dr. Winik was a diplomate of the American Board of Internal Medicine and a Fellow of the American College of Physicians. He was an Active member of the D. C. Medical Society from 1942, a member of the American Medical Association and the Jacobi Medical Society. He served on the staff of the Jewish Home for the Aged.

He leaves his wife, Mrs. Helen Silverman Winik, a son, Fred, and a daughter, Marsha, all of the home address, 3900 McKinley Street, N.W., where he also maintained his offices. He also leaves a daughter, Mrs. Carolyn Farrell, of Burbank, California. His parents, Mr. and Mrs. Hyman Winik, of Washington, also survive him.

## John A. Bowler, Jr., B.A., M.D.

(1908–1964)

Dr. John A. Bowler, Jr., Washington psychiatrist, died suddenly, October 27, 1964 at D. C. General Hospital. He lived at 3630 39th Street, N.W. His offices were at 3705 Jenifer Street, N.W.

A native of Colorado, Dr. Bowler was born in Leadville, March 21, 1908. He came to Washington in 1944 and was employed at the U. S. Public Health Service while studying at George Washington University, where he earned his bachelor's degree in 1949 and a medical degree in 1951. He interned for a year at George Washington University Hospital, then served a year's residency at the same hospital; this training was followed by a 3-year residency in psychiatry at St. Elizabeths Hospital. At the conclusion of his studies in 1956 he began private practice in his specialty in Washington.

Dr. Bowler was an Active member of the Medical Society of the District of Columbia from 1957. He was a member of the American Medical Association, the American Psychiatric Association, the George Washington University Medical Alumni Association, and the Medical Society of St. Elizabeths Hospital.

Surviving him are his wife, Mrs. Dorothy Ann Bowler, and 2 sons, John A. Bowler III, of Newcastle, Wyo., and Michael C. Bowler, of Ft. Knox, Ky. His mother, Mrs. Lulu M. Bowler, of Denver, also survives him.

## James Ross Veal, B.S., M.D., F.A.C.S.

(1902–1964)

Dr. J. Ross Veal, well known Washington surgeon who specialized in vascular surgery, died, October 9, 1964 at Doctors Hospital.

Dr. Veal was born in Louisville, Alabama, March 4, 1902. A graduate of the University of Alabama (1923), he received his degree in medicine from the University of Pennsylvania in 1928. He interned at Pennsylvania Hospital, in Philadelphia, for a 2-year period and held a fellowship at the Lahey Clinic for another year.

Dr. Veal began his medical teaching career in New Orleans at the Louisiana State University, and rose to Assistant Professor of Surgery in its School of Medicine. He left New Orleans in 1938

## Ross Veal—His Legacy

So SMOOTHLY does the memory of this man merge with the reality of our long association with him that we are almost surprised not to have him walk in at 10 o'clock ready to operate. In him was a happy balance of art and science so brightly apparent that both the love and respect of his patients became their best measure. A superb surgical technician of wise judgment, he made his work look deceptively easy.

Few of our colleagues knew and were better liked by more of the contemporary great men of medicine than Ross Veal. These fruitful relationships were based upon productive research and teaching as well as on a high volume of patient care. More than all this, however, his spiritual values in recent times came to dominance. It was inspiring to see patients of his who hardly seemed to have had ample chance to know him travel many miles just to leave outside his sick room personal messages that they cared. During all the long last months, knowing well his diagnosis and prognosis, walking day by day with death and in pain, he came to greet death as a friend.

If we are not to be overburdened at the earthly loss of those for whom we care most we must transmute these jewels of memory into the motivation of our own finer behavior. Their legacy is to have us see these verities more clearly and, seeing, act upon them.

DONALD STUBBS, M.D.

to become Chief Medical Officer in Surgery at Gallinger (now D. C. General) Hospital. He served in this post until 1943 when he resigned to enter private practice. He retired last April because of ill health.

Along with his private practice he taught at George Washington University School of Medicine, where he was Adjunct Clinical Professor of Surgery from 1939 to 1943, and later at Georgetown University, where he was named Associate Professor of Surgery in 1944 and 4 years later, Clinical Professor of Surgery (Cardiovascular). He was consultant in surgery to Doctors Hospital and was on the attending staff of Georgetown Hospital and the Washington Hospital Center.

Among Dr. Veal's original contributions to surgery was a new surgical method for reducing complications after leg amputation. In 1940 the American Medical Association recognized this advance, and two years later it honored him for developing an improved treatment of frostbite, as did the Southern Medical Association.

Dr. Veal was a co-founder of the Society for Vascular Surgery, a Fellow of the American College of Surgeons, and a member of the American Medical Association, the American Surgical Association, the Southern Surgical Association, the Southeastern Surgical Congress, the International Cardiovascular Society and the International College of Surgeons. He had contributed over 100 articles to some 15 national journals.

Dr. Veal was elected to Associate membership in the D. C. Medical Society in 1940; after transferring to Active membership in 1944, he served the Society in many ways. He was Past President of the Washington Heart Association and a member of the Hippocrates-Galen Society, the Washington Academy of Surgery, and the Clinico-Pathological Society. He also belonged to the Congressional Country Club and the University Club. He was a member of the Metropolitan Memorial Methodist Church.

In addition to his medical profession Dr. Veal devoted much time to civic affairs. He was active for many years in the Federation of Citizens' Associations and served as its President in 1951. He had served on the Board of Directors of the Washington Board of Trade and the Community Chest, and as a member of the Public Welfare Advisory Council.

He leaves his wife, Mrs. S. Jean Veal, of the home address, 5409 Newington Drive, N.W. His son, James Ross Veal, Jr. is a student at the University of Alabama and his daughter, Mrs. Jean Morris, lives in Levittown, Pa.

## Maurice Russell Edmonston, B.S., M.D.

### (1906–1964)

DR. M. RUSSELL EDMONSTON, an ophthalmologist who practiced in Washington until 1955, died, September 15, 1964 in Durango, Colorado.

Dr. Edmonston was a Washingtonian, born December 17, 1906. He earned his Bachelor of Science degree from Georgetown University in 1930 and graduated in medicine from Georgetown in 1932. He interned at Providence Hospital for a year and served another year as resident physician at the same hospital. He began general practice in the District of Columbia in 1934.

Ten years later Dr. Edmonston enrolled in the Graduate School of the University of Pennsyl-

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vania for a year's study in ophthalmology. He returned to Washington to specialize in that field. From 1945 to 1946 he was resident physician at the Episcopal Ear, Nose and Throat Hospital, now a part of the Washington Hospital Center. In 1946 he was named associate surgeon in ophthalmology at Episcopal and at Georgetown University Hospitals.

Dr. Edmonston was an Active member of the D. C. Medical Society from 1938 to 1939 and again from 1943 to 1955, when he moved to Georgetown, Delaware. He was a member and Past President of the Georgetown Clinical Society.

Surviving him is his wife, Mrs. Mabel Edmonston, of Durango. He also leaves a daughter, Mrs. Richard Martin and 2 sons, Russell and Thomas Edmonston, all of Washington, and a stepdaughter, Mrs. Wyland K. Coston, of Bethesda, Md. His father, Samuel S. Edmonston, of Arlington, Va., also survives him.

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During the training of surgical residents close contact is maintained with the department of anesthesia where guidance is sought in anesthetic techniques. More emphasis on the use of local anesthesia will prove rewarding to the surgeon, the anesthesiologist, and the patient.

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- Ackerman, L. V., in collaboration with Butcher, H. R., Jr.: Surgical Pathology, 3rd ed., (Matthews) Adv. (Aug.) 14
- Adriani, J., edited by: Appraisal of Current Concepts in Anesthesiology, volume 2, (Grunwald) Adv. (May) 18
- Allen, H. F., and others: Infectious Diseases of the Conjunctiva and Cornea. Symposium of the New Orleans Academy of Ophthalmology, (Bernstein) Adv. (May) 18
- Allman, D. B.: Report of The Commission on the Cost of Medical Care, American Medical Association, 1964. Volume I. General Report, (West) Adv. (Nov.) 16
- Alvarez, W. C.: Incurable Physician. An Autobiography, (Polner) Adv. (Sept.) 27
- Andrews, G. C., and Domonkos, A. N.: Diseases of the Skin: For Practitioners and Students, 5th ed., (Osborn) Adv. (Jan.) 28
- Armfield, B. B.: Medical Department, United States Army: Organization and Administration in World War II, (Lipow) Adv. (May) 18
- Avery, M. E., and Schaffer, A. J., consulting editor: The Lungs and Its Disorders in the Newborn Infant. Volume I in the Series: Major Problems in Clinical Pediatrics, (Kulczycki) Adv. (Dec.) 14
- Beard, G., and Wood, E. C.: Massage—Principles and Techniques, (Zohn) Adv. (Dec.) 14
- Bland, J. H., and 21 Contributors: Clinical Metabolism of Body Water and Electrolytes, (Maher) Adv. (Jan.) 28
- Bockus, H. L.: Gastroenterology, Volume II, 2nd ed., (Vosger) Adv. (Oct.) 26
- Boies, L. R., Hilger, J. A., and Priest, R. E.: Fundamentals of Otolaryngology. A Textbook of Ear, Nose and Throat Diseases, 4th ed., (Trible) Adv. (Oct.) 26
- Boniuk, M., editor: Ocular and Adnexal Tumors. New and controversial aspects, (Simon) Adv. (Oct.) 26
- Brainerd, H., Margen, S., and Chatton, M. J., and Associate Authors: Current Diagnosis and Treatment, (Belcher) Adv. (June) 16
- Cavanagh, J. R.: Fundamental Marriage Counseling—A Catholic Viewpoint, (Cromer) Adv. (Aug.) 14
- Cecil, R. L., and Conn, H. F., edited by: The Specialties in General Practice, 3rd ed., (Cross) Adv. (Sept.) 27
- Coates, J. B., editor-in-chief; Carter, B. N., editor for activities of surgical consultants, and McFetridge, E. M., associate editor: Medical Department, United States Army: Surgery in World War II. Activities of Surgical Consultants, Volume II, (Rizzoli) Adv. (Dec.) 14
- Coates, J. B., Jr., editor-in-chief, and Wiltse, C. M., editor for personnel: Medical Department, United States Army: Personnel in World War II, (Borden) Adv. (Jan.) 28
- Commission on Drug Safety: Proceedings, Conference of Professional and Scientific Societies—Chicago—June 27–28, 1963, (Ellenhorn) Adv. (May) 20
- Conn, H. F., edited by: Current Therapy—1964. Latest Approved Methods of Treatment for the Practicing Physician, (Matossian) Adv. (Nov.) 16
- Crenshaw, A. H., editor: Campbell's Operative Orthopaedics, 4th ed., (Robinson) Adv. (June) 16
- Davis, L., edited by: Christopher's Textbook of Surgery, 8th ed., (Cooper) Adv. (Nov.) 16
- DeWeese, D. D., and Saunders, W. H.: Textbook of Otolaryngology, 2nd ed., (Itscoitz) Adv. (Nov.) 16
- Ellis, P. P., and Smith, D. L.: Handbook of Ocular Therapeutics and Pharmacology, (Weimer) Adv. (July) 10
- Follmann, J. F., Jr.: Medical Care and Health Insurance, (Polner) Adv. (Mar.) 14
- Ganong, W. F.: Review of Medical Physiology, (Tidball) Adv. (Feb.) 30
- Gellis, S. S., and Kagan, B. M.: Current Pediatric Therapy, (Assevero) Adv. (June) 16
- Gilbert, C. R. A.: Better Health for Women, (Deane) Adv. (Dec.) 18
- Gilmer, W. S., Jr., Higley, G. B., Jr., and Kilgore, W. E.: Atlas of Bone Tumors, including tumorlike lesions, (Martens) Adv. (Apr.) 30
- Glaser, G. H., edited by: EEG and Behavior, (Stevens) Adv. (Aug.) 14
- Goth, A.: Medical Pharmacology—Principles and Concepts, 2nd ed., (Connolly) Adv. (June) 16
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- Harper, H. A.: Review of Physiological Chemistry, 9th ed., (Brecher) Adv. (Feb.) 30
- Havener, W. H.: Synopsis of Ophthalmology, 2nd ed., (Pappas) Adv. (July) 10
- Henry, R. S.: The Armed Forces Institute of Pathology. Its First Century 1862–1962, (Miller) Adv. (Oct.) 26
- Hershey, F. B., and Calman, C. H.: Atlas of Vascular Surgery, (Edgecombe) Adv. (Jan.) 32
- Hinshaw, H. C., and Garland, L. H.: Diseases of the Chest, 2nd ed., (Klepser) Adv. (Feb.) 30
- Hodgins, E.: Episode, (Montgomery) Adv. (Sept.) 27
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- King, A., and Nicol, C.: Venereal Diseases, (Herbst) Adv. (Dec.) 18
- Koppanyi, T., and Karczmar, A. G.: Experimental Pharmacodynamics, 3rd ed., (Cohn) Adv. (Feb.) 30
- Kossmann, C. E., Chairman, Criteria Committee of New York Heart Association: Diseases of the Heart and Blood Vessels: Nomenclature and Criteria for Diagnosis, 6th ed., (Brill) Adv. (June) 18
- Laughlin, H. P.: Mental Mechanisms, (Overholser) Adv. (May) 20
- Lucia, S. P., edited by: Alcohol and Civilization, (Platkin) Adv. (Apr.) 30
- Mainland, D.: Elementary Medical Statistics, 2nd ed., (Stolar) Adv. (Sept.) 28
- Modell, W., editor: Drugs of Choice 1964–1965, (Miller) Adv. (Aug.) 16
- Nadas, A. S.: Pediatric Cardiology, 2nd ed., (Keshishian) Adv. (Feb.) 32

Nash, E. M., Jessner, L., and Abse, DeW., edited by: Marriage Counseling in Medical Practice. A Symposium, (Wilner) Adv. (Aug.) 16
Prior, J. A., and Silberstein, J. S.: Physical Diagnosis: The History and Examination of the Patient, 2nd ed., (Healy) Adv. (Mar.) 14
deReuck, A. V. S., and Cameron, M. P.: editors for the Ciba Foundation: Ciba Foundation Study Group No. 13. Resistance of Bacteria to the Penicillins, (April) Adv. (Jan.) 32
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Shands, A. R., Jr., and Raney, R. B., with the collaboration of Brashear, H. R.: Handbook of Orthopaedic Surgery, 6th ed., (Lavine) Adv. (Jan.) 34
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Sherman, A. I.: Cancer of the Female Reproductive Organs, (Neslen) Adv. (Jan.) 34
Shilling, C. W., editor: Atomic Energy Encyclopedia in the Life Sciences, (Behrens) Adv. (June) 18
Shirkey, H. C., editor: Pediatric Therapy, (Millar) Adv. (July) 10
Slepcevich, E. M.: School Health Education Study 1961–1963. Summary Report of a Nationwide Study of Health Instruction in the Public Schools, (Hobart) Adv. (Oct.) 28
Smith, R. M.: Anesthesia for Infants and Children, 2nd ed., (Fierst) Adv. (May) 20
Top, F. H.: Communicable and Infectious Diseases—diagnosis, prevention, treatment, 5th ed., (Passes) Adv. (Dec.) 18
Vennes, C. H., and Watson, J. C.: Patient Care and Special Procedures in X-ray Technology, 2nd ed., (Cole) Adv. (Oct.) 28
Wolstenholme, G., edited by: Man and His Future. A Ciba Foundation Volume, (Edmonds) Adv. (June) 31
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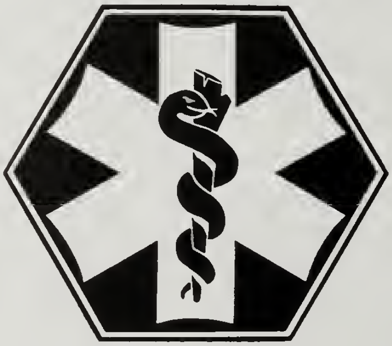

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1. Welch, C. E., Diverticula of the Alimentary Tract, in Conn, H. (editor): Current Therapy—1961, Philadelphia, W. B. Saunders Company, 1961, pp. 224-225.

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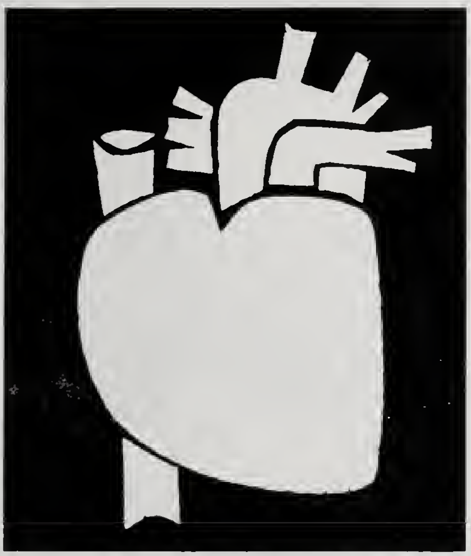

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* AMA Council on Foods and Nutrition: The Regulation of Dietary Fat, *JAMA* 181:411-423 (August 4, 1962).
AMA Council on Foods and Nutrition: Composition of Certain Margarines, *JAMA* 179:719 (March 3, 1962).

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*emotionally aggravated pain,* when anxiety or agitation creates tension that thwarts the efficacy of both relaxant and analgesic medication.

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*Contraindicated* for patients hypersensitive to any component of the formulations. There are no specific contraindications to methocarbamol, and untoward reactions are not to be expected.

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*"The average practitioner is quite capable of handling the vast majority of ex-institutionalized patients by regulation of medication, reassurance, manipulation of the environment where necessary, and . . . other technics."* Kline, N.S.: Postgrad. Med. *27*:620 (May) 1960.

The family physician must often assume responsibility for the discharged mental patient. Thorazine (chlorpromazine, SK&F) can be a valuable adjunct to the continuing care of this patient, because it helps prevent relapses by insulating him from the impact of stressful experiences. For successful rehabilitation and prevention of rehospitalization, however, the former mental patient—and often his family—also needs the guidance and counsel of his physician.

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*Brief Summary:* Thorazine (chlorpromazine, SK&F) has been successfully used for 10 years in the treatment of mental and emotional disturbances, and has proven highly effective in the maintenance therapy of former hospitalized mental patients. *Principal side effects:* The most frequently encountered side effect is transitory drowsiness. Other occasional side effects include: dry mouth, nasal congestion, constipation, miosis, dermatological reactions, photosensitivity, jaundice, hypotension, increased appetite and weight; very rarely, mydriasis, agranulocytosis, extrapyramidal symptoms. *Contraindications:* Comatose states or in the presence of excessive amounts of C.N.S. depressants.

For complete prescribing information, please see *PDR* or available literature.

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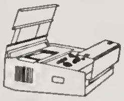

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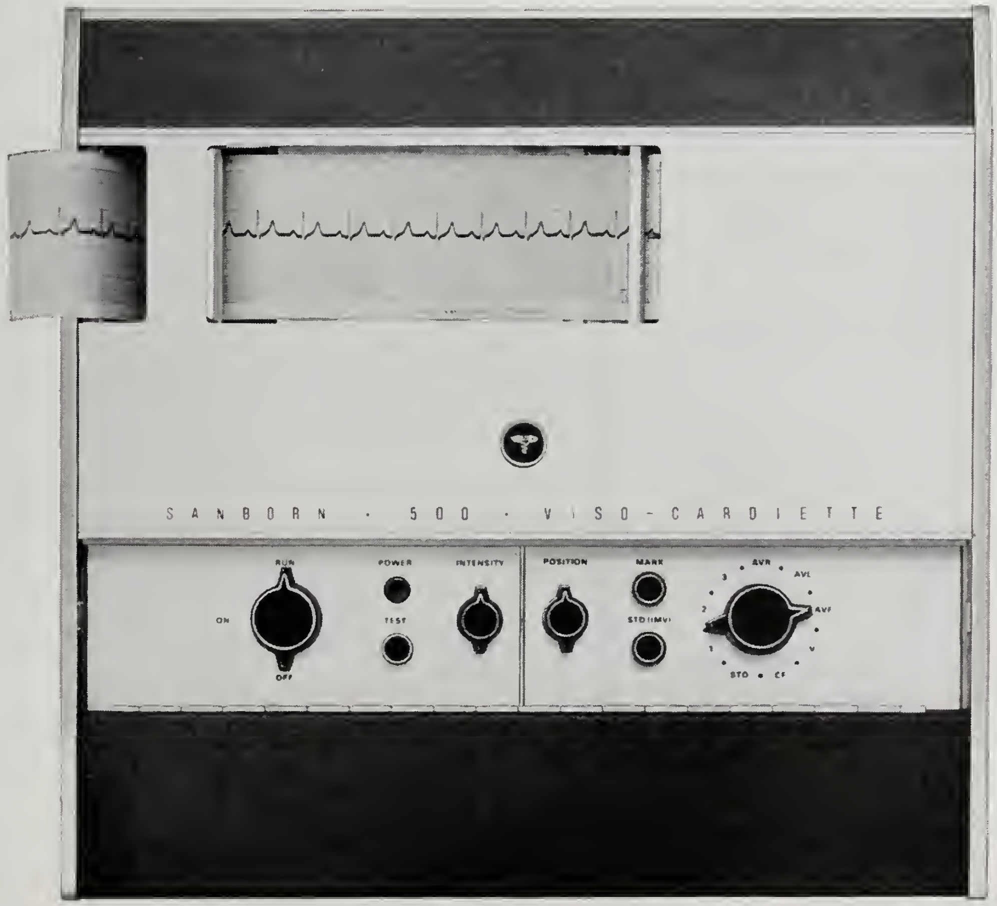

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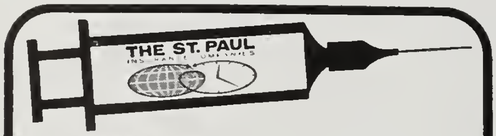

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# BOOKS RECEIVED

Acknowledgment is made of the following books which have recently been received.

**Handbook of Obstetrics and Gynecology.** Ralph C. Benson, M.D. Price (paper), $5.00. Pp. 656. Los Altos, Calif.: Lange, 1964.

**Stereoscopic Manual of the Ocular Fundus in Local and Systemic Disease.** Frederick C. Blodi, M.D., and Lee Allen. Price, $32.50. Pp. 132, with 6 line drawings, 95 photomicrographs, 105 stereoscopic views in full color on 15 View-Master® reels, and a View-Master® compact viewer. St. Louis: Mosby, 1964.

**Medical Department, United States Army: Preventive Medicine in World War II. Communicable Diseases: Arthropodborne Diseases Other Than Malaria, Volume II.** Colonel John Boyd Coates, Jr., M.C., Editor-in-Chief; Ebbe Curtis Hoff, Ph.D., M.D., Editor for Preventive Medicine, and Phebe M. Hoff, M.A., Assistant Editor. Prepared and published under the direction of Lieutenant General Leonard D. Heaton, The Surgeon General, United States Army. Price, $4.25. Pp. 397, with 65 figures. Washington 25, D. C.: Superintendent of Documents, U. S. Government Printing Office, 1964.

**A Marriage Manual for Catholics.** William A. Lynch, M.D. With a Foreword by His Eminence, Richard Cardinal Cushing. Price, $4.95. Pp. 359. New York: Trident Press, 1964.

**Modern Treatment,** volume 1, number 3, May 1964. Edwin D. Bayrd, M.D., Guest Editor for **Treatment of the Anemias;** J. Willis Hurst, M.D., and Robert C. Schlant, M.D., Guest Editors for **Treatment of Cardiac Arrhythmias.** Pp. 263.

**Modern Treatment,** volume 1, number 4, July 1964. Lowell A. Rantz, M.D., Guest Editor for **Treatment of Infectious Diseases.** Pp. 243. Price (paper), $16.00 per year. New York: Hoeber Med. Div.-Harper & Row, 1964.

**Give and Take: The Development of Tissue Transplantation.** Francis D. Moore, M.D. Price, $5.50. Pp. 182, with 19 illustrations. Philadelphia: Saunders, 1964.

**Cardiac Arrest and Resuscitation,** 2nd ed. Hugh E. Stephenson, Jr., B.S., M.D., F.A.C.S. Price, $15.00. Pp. 501, with 75 illustrations. St. Louis: Mosby, 1964.

**Doctors You Know By Name.** Walter A. Wells, A.M., M.D., F.A.C.S. Price, $3.95. Pp. 190. Philadelphia: Dorrance, 1964.

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## NATIONAL AND REGIONAL MEETINGS

January 8–9: American Society for Surgery of the Hand. Americana Hotel, New York. Address: Dr. Don L. Eyler, *Executive Secretary*, 1919 Hayes Street, Nashville 4, Tenn.

January 8–9: Orthopaedic Research Society. Americana Hotel, New York. Address: Dr. R. A. Calandruccio, *Secretary-Treasurer*, 869 Madison Avenue, Memphis, Tenn.

January 9–14: American Academy of Orthopaedic Surgeons. Americana Hotel, New York. Address: Mr. John K. Hart, *Executive Secretary*, 29 East Madison Street, Chicago 2, Ill.

February 10–13: American College of Radiology. Bellevue-Stratford Hotel, Philadelphia. Address: Mr. William C. Stronach, *Executive Director*, 20 North Wacker, Chicago, Ill.

February 13–17: American Academy of Allergy. Americana Hotel, Bal Harbour, Fla. Address: Mr. James O. Kelley, *Executive Secretary*, 756 North Milwaukee Street, Milwaukee, Wisc.

February 17–19: American Academy of Occupational Medicine. Columbus Plaza Hotel, Columbus, Ohio. Address: Dr. Gordon M. Hemmett, *Executive Secretary*, 343 State Street, Rochester, N. Y. 14650

February 17–21: American College of Cardiology. Statler-Hilton Hotel, Boston. Address: Dr. Philip Reichert, *Executive Director*, Empire State Building, 350 Fifth Avenue, New York, N. Y. 10001

February 25-March 2: American Dermatological Association. Boca Raton Hotel, Boca Raton, Fla. Address: Dr. Robert R. Kierland, *Executive Secretary*, Mayo Clinic, Rochester, Minn.

March 7–10: International Academy of Pathology. Philadelphia Sheraton Hotel, Philadelphia. Address: Dr. F. K. Mostofi, *Secretary-Treasurer*, Armed Forces Institute of Pathology, Washington, D. C.

March 19–21: American Society of Internal Medicine. Conrad Hilton Hotel, Chicago. Address: Mr. Albert V. Whitehall, *Executive Director*, 3410 Geary Blvd., San Francisco 18, Calif.

March 22–26: American College of Physicians. Chicago. Address: Dr. Edward C. Rosenow, Jr., *Executive Director*, 4200 Pine Street, Philadelphia 4, Pa.

**March 29–April 1: Southeastern Surgical Congress. Statler Hilton Hotel, Washington, D. C. Address: Dr. A. H. Letton, Secretary-Director, 340 Boulevard N. E., Atlanta, Ga.**

June 19: American Association for the Study of Headache. New York Hilton Hotel, New York. Address: Dr. Lester S. Blumenthal, *Chairman*, 5315 Connecticut Avenue, N. W., Washington, D. C. 20015

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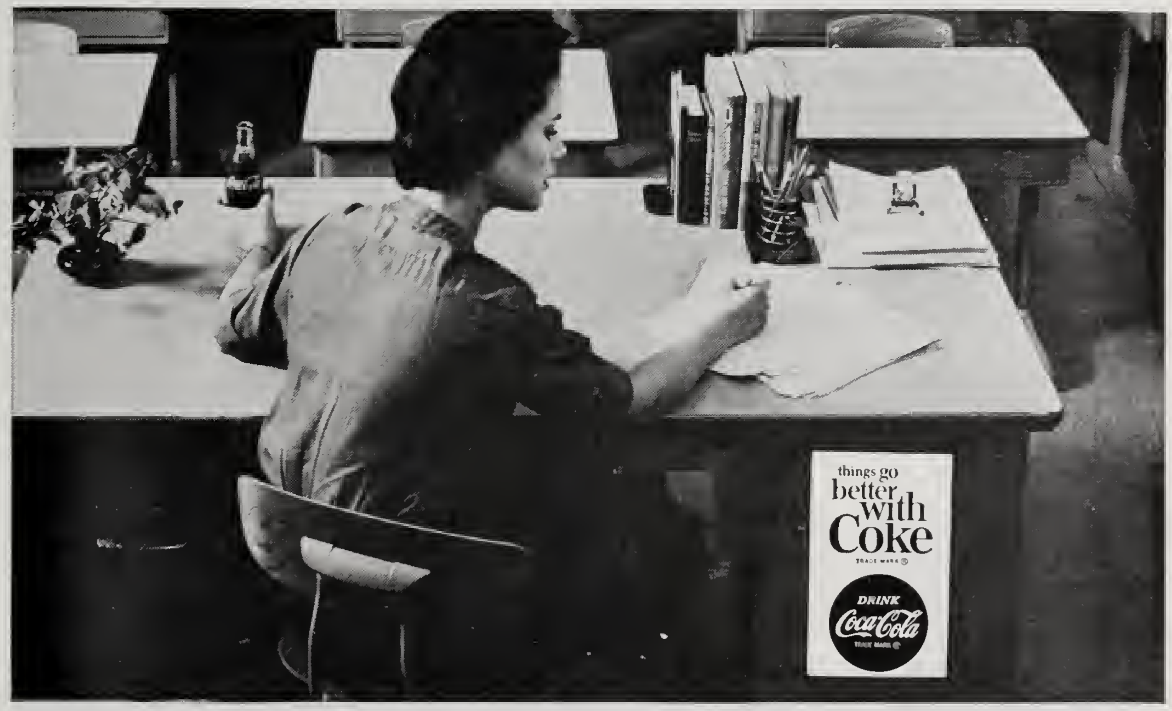

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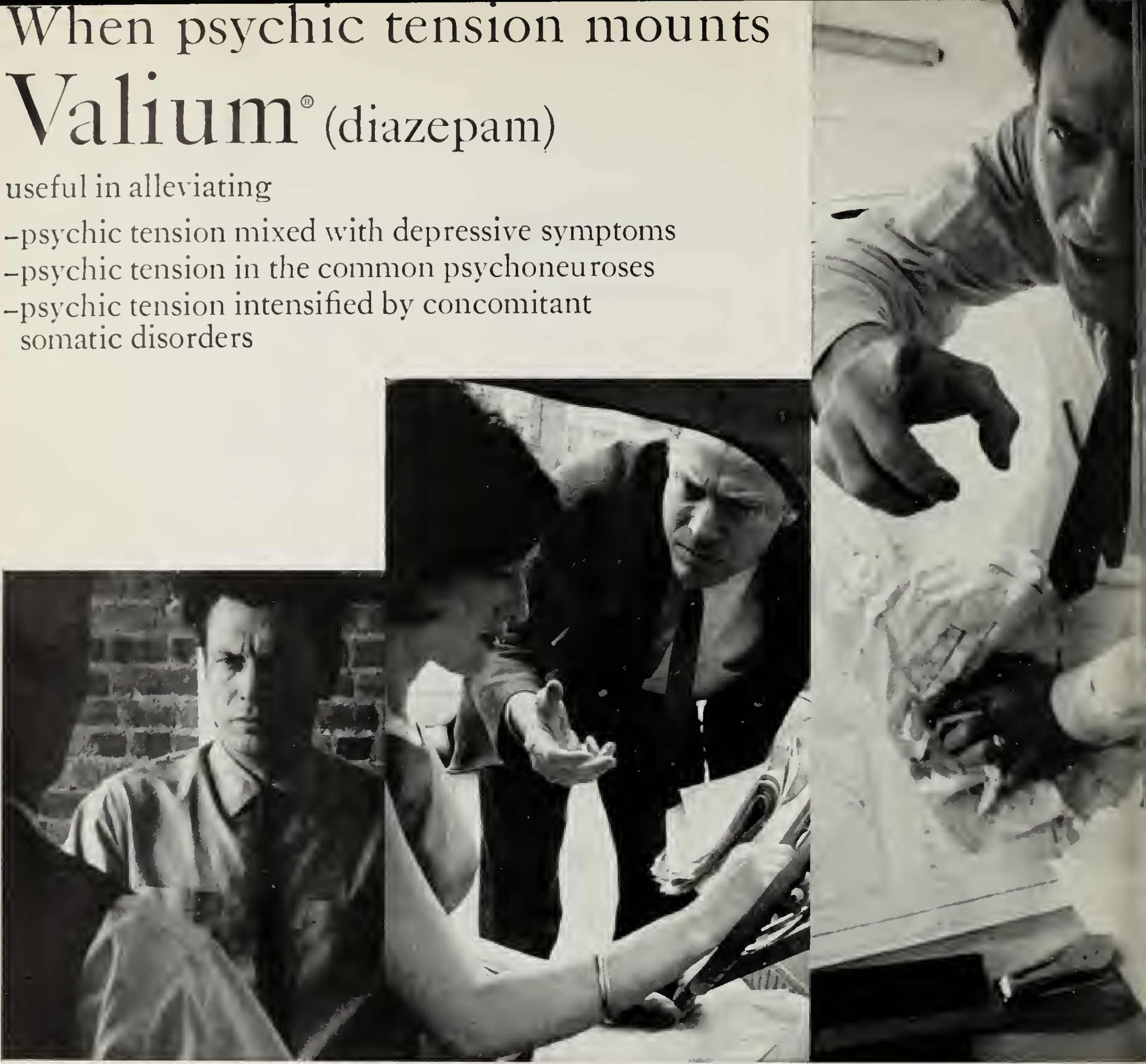

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| *Dosage and administration* | *Usual daily dose* |
|---|---|
| Mild to moderate psychoneurotic reactions: Manifested by anxiety-tension alone or with depressive symptomatology, agitation, restlessness, psychophysiological disturbances | 2 mg to 5 mg, 2 or 3 times daily |
| Severe psychoneurotic reactions: Where severe anxiety, fear, agitation, aggression or hostility exist alone or with depressive symptoms | 5 mg to 10 mg, 3 or 4 times daily |
| Alcoholism: As an aid in symptomatic relief of acute agitation, tremor, impending or acute delirium tremens and hallucinosis | 10 mg, 3 or 4 times during the first 24 hours; reducing to 5 mg, 3 or 4 times daily as needed |
| Muscle spasm associated with cerebral palsy or athetosis | 2 mg to 10 mg, 3 or 4 times daily |

*Contraindications:* Valium (diazepam) is contraindicated in infants, patients with a history of convulsive disorders or patients with a history of glaucoma.

*Warning:* Valium (diazepam) is not of value in the treatment of psychotic patients, and for this reason should not be employed in lieu of appropriate treatment.

*Precautions:* In elderly or debilitated patients, it is important to limit the dosage to the smallest effective amount to preclude the development of ataxia or oversedation (not more than 1 mg, 1 or 2 times daily initially, to be increased gradually as needed and tolerated). As is true of all CNS-acting drugs, until the correct maintenance dosage is established, patients receiving Valium (diazepam) should be advised against possibly hazardous procedures requiring complete mental alertness or physical coordination. Driving an automobile during the period of Valium (diazepam) therapy is not recommended. In general, the concurrent administration of Valium (diazepam) and other psychotropic agents is not recommended. If such combination therapy is used, careful consideration should be given to the pharmacology of the agents to be employed with Valium (diazepam)—particularly with known compounds which may potentiate the action of Valium (diazepam), such as phenothiazines, barbiturates, MAO inhibitors and other antidepressants.

Since Valium (diazepam) has a central nervous system depressant effect, patients should be advised against the simultaneous ingestion of alcohol and other central nervous system depressant drugs during Valium (diazepam) therapy. Safe use of Valium (diazepam) during pregnancy has not been established. The usual precautions are indicated when Valium (diazepam) is used in the treatment of anxiety states where there is any evidence of impending depression; particularly the recognition that suicidal tendencies may be present and protective measures may be necessary. The usual precautions in treating patients with impaired renal or hepatic function should be observed.

*Side effects:* In clinical use, fatigue, drowsiness and ataxia have been reported; in most instances these are dose-related and may be avoided by proper dosage adjustment. Mild nausea and dizziness may occur on occasion. As with any new agent, when it is administered for protracted periods of time, periodic blood counts and liver function tests are advisable. Abrupt cessation after prolonged overdosage may, in some patients, produce withdrawal symptoms (e.g., convulsions, tremor, abdominal and muscle cramps, vomiting, sweating) similar to those seen with barbiturates, meprobamate and Librium® (chlordiazepoxide HCl). Changes in EEG patterns have been observed in patients during and after Valium (diazepam) treatment.

Paradoxical reactions, such as excitement, depression, stimulation, sleep disturbances, acute hyperexcited states and hallucinations have been reported. Other side effects noted have been blurred vision, diplopia, headache, incontinence, slurred speech, tremor and skin rash.

Valium (diazepam) is available as 5-mg and 2-mg tablets. For convenience and economy in prescribing, both strengths are supplied in bottles of 50.

Roche Laboratories endorses the principle of caution in the administration of any therapeutic agent to pregnant patients.

ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, N. J. 07110